

BUYER'S GUIDE: **160** MAC DTP PRODUCTS REVIEWED AND RATED

NOVEMBER 1992

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MacUser

SNEAK PREVIEW

3 NEW MACS

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How to set up a complete Mac home office

DTP TOOLS

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- ★ Which slide scanners are best
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NOVEMBER 1992

Volume 8 Number 11

On the cover: Apple's new Performa series includes the first Mac with a built-in CD-ROM drive. Cover photo by Steven Underwood



53

The newest thing about the new Performa Macs isn't what's inside — it's where and how they'll be sold.



267

There's a new way to simplify your Mac — and it's not from Apple.



Buyer's Guide 16

Check out 65 ways to plug tailor-made features in to QuarkXPress.



241

Are you getting the most from your home-office Mac?

Features

DTP Buyer's Guide 91

Desktop Publishing: The State of the Art

BY AILEEN ABERNATHY

DTP tools are more powerful and customizable and easier to use than ever before. Here's how to pick the right ones. **Buyer's Guide 4**

XPress Yourself

BY PHILIP BISHOP AND AILEEN ABERNATHY

With more than 100 XTensions and counting, QuarkXPress is the most customizable page-layout program currently available. We evaluate 65 commonly used XTensions and tell you where you can find them. **Buyer's Guide 16**

True Perspective: Drawing Programs

BY ERIC TAUB

We take a close look at 11 drawing programs, including Illustrator 3.2, FreeHand 3.1, and Canvas 3.04, to give you our perspective on the state of the art in art. **Buyer's Guide 32**

Sliding into High Gear: Desktop Slide Scanners

MacUser LABS

BY BRUCE FRASER

We test six desktop color slide scanners to reveal that you can get drum-scanner quality for less than a tenth of drum-scanner cost — if you choose the right hardware. **Buyer's Guide 46**

MiniFinders

COMPILED BY BRUCE MEWHINNEY

For your DTP buying decisions: quick reviews of more than 160 software packages for desktop publishing. **Buyer's Guide 63**

Bargain Speedsters: V.32bis Modems

MacUser LABS

BY STEPHEN SATCHELL AND STEFAN B. LIPSON

Shopping for a faster modem? Price doesn't necessarily predict performance in the world of V.32bis modems. We put 12 "Mac ready" high-speed modems through some real-world tests to see which ones come out on top. **176**

Fast 68040 Accelerators

MacUser LABS

BY JEFF PITTELKAU

Seven cards promise to boost Mac II performance to Quadra 950 levels. **210**

Removable Hard Drives

MacUser LABS

BY MARK FROST

We test four removable hard drives that attempt to provide greater reliability and speed than removable-cartridge drives. **216**

Sections



NEW ON THE MENU 49

Apple's latest easier-than-the-Finder interface, action-packed presentations, new networkable Compaq printers, and more. Plus: A sneak peek at Apple's new Performa series of consumer-conscious computers and value-packed bundles for one-stop shopping. 49



BRIDGES 219

Platforms

David goes after Goliath in the UNIX wars with the entry of MachTen, based on Carnegie Mellon's kernel. 221

Mac to PC

Our new connectivity columnist, John Rizzo, explains those four little words you'll never have to see again: "Not a Macintosh disk." 235



PERSONAL MACINTOSH 239

Personal Best

Steven Bobker outlines your best options in hardware, software, and furnishings to make your home office both productive and pleasant. 241

Mobile Mac

Can software extend your PowerBook's battery life? Henry Bortman says, "Maybe," in this survey of the latest crop of PowerBook utilities. 255

Shopping List

The fax-modem buyer's checklist. 265



POWER TOOLS 267

Techniques

Think your Mac caught a virus? Here's how to tell and some simple precautions for staying virus-free. 268

Beating the System

When you talk to your Mac, does it listen? Bob LeVitus explains why voice recognition isn't just science fiction and how you can give your Mac voice lessons. 271

The Mac Workshop

Pumping up the Mac SE. 275

Tip Sheet

How to speed up virtual memory, move rows in Word tables, and type that cute Apple symbol. 277

Help Folder

How to recycle floppies, personalize your keyboard layout, and tell SIMMs apart. 279

Reviews

DiVA VideoShop

This multifeatured QuickTime-editing tool integrates sound and images while cataloging your clips. 58

MacTools 2.0

The latest version includes the most comprehensive bundle of disk-repair utilities to date. 60

Bank Street Writer

A classroom writing tool gets mixed marks. 62

DateBook

This personal-appointment scheduler features hot links to an address-book manager. 63

M.Y.O.B. 3.0

Small-business accounting gets more intuitive. 72

Personal Press 2.0

Automated page layout gets even easier. 73

OmniPage Direct and ScanJet IIp

A dream team takes OCR into the mainstream. 75

JAG and Smoothie

These two utilities smooth bit-mapped edges. 79

PROMotion

This solid animation package provides excellent control over every component. 81

Quick Clicks

PowerPort/Silver and **PowerPort/Gold**: Internal fax modems for PowerBooks. **Spelunx** and **the Caves of Mr. Seudo**: Learning made fun. **Z-Nix Cordless Super Mouse**: No strings attached. **Transparent Language**: Literary language acquisition. **Prince of Persia**: Not just another pretty arcade game. 85

Departments

Jon Zilber

Desktop politics and the Macintosh platform. 25

Andy Ihnatko

How to spot bogus speed claims. 31

Michael Swaine

Evolutionary trends. 43

John C. Dvorak

Here comes Apple's Butt-Kicker. 362

Letters

Readers opt for ease of use, smaller programs, and low-end machines. 13

This Month on ZiffNet/Mac 175

Product/Advertiser Index 293

Marketplace 336

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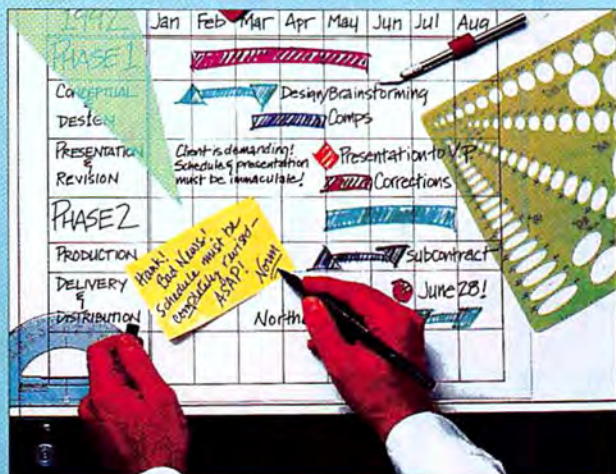
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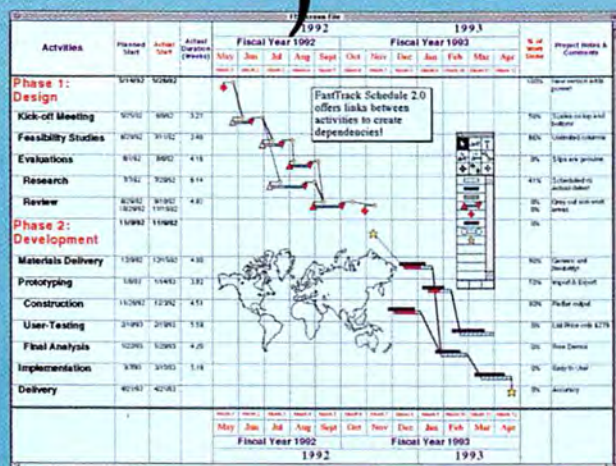
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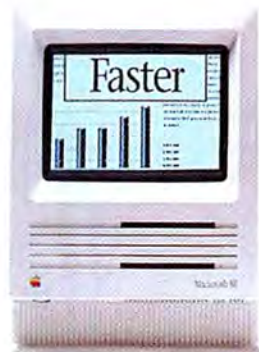
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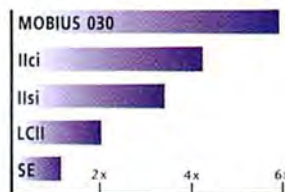
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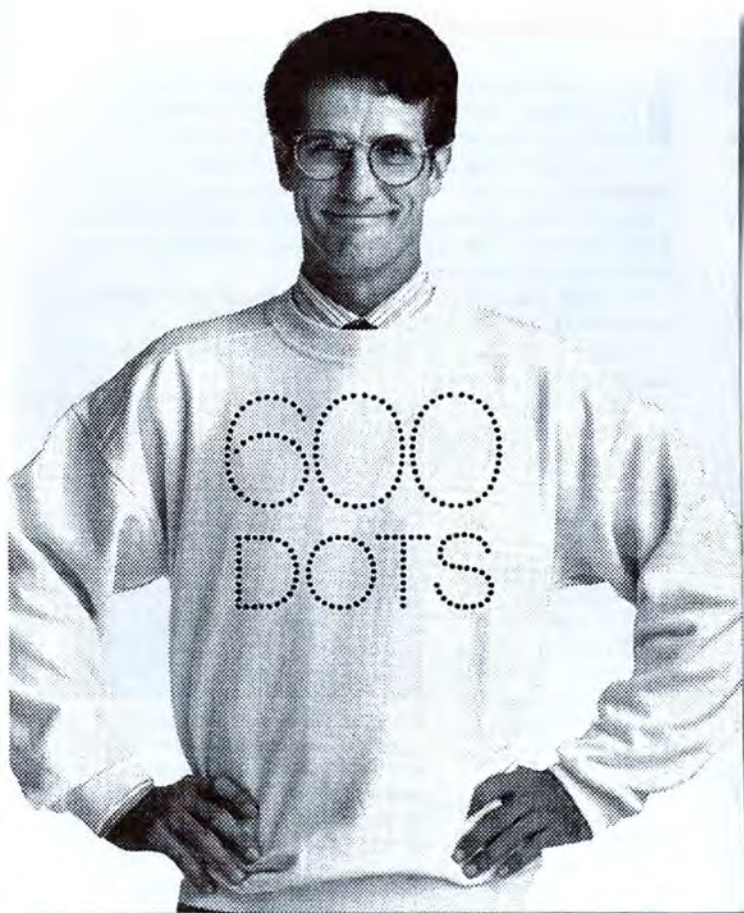
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CIRCLE 35 ON READER SERVICE CARD.

About

MacUser

Glasnost Man

It seems like only yesterday: DOS was the cornerstone of an Evil Empire, bent on world domination, shackling brainwashed subjects to an inhumane system. But today, Sculley and Gates are having their pictures taken together and those brainwashed DOS users have become a market opportunity.

Apple's new openness toward Microsoft, Windows, DOS, and PCs is more than just political rhetoric. Apple has taken several steps to make it real:

- Releasing Macintosh PC Exchange, software that lets Macs recognize DOS-formatted disks.

- Designing VITAL, a scheme for integrating Macs into enterprisewide systems of Macs, PCs, and mainframes.

- Developing OCE, a cross-platform messaging system.

- Writing, through its software subsidiary, Claris, Windows versions of applications.

- Entering into a joint venture with IBM to develop a brand new operating system that will run on multiple platforms.

For John Rizzo, the author of our new "Mac to PC" column, this

glasnost comes none too soon. As *MacUser's* technical editor for the past four years, John has learned every trick in the book for getting PCs and Macs to talk to one another. In fact, John wrote the book (*MacUser Guide to Connectivity*, Emeryville, California: Ziff-Davis Press, 1992; \$27.95). Now he's looking ahead to a future when tricks won't be necessary to get Macs and PCs to communicate.

A great deal still needs to be done before that future becomes a reality. An infrastructure needs to be put into place, but it's getting closer. "It's now easier than ever to make Macs and PCs work together," John says. And in the near future, not only will it be easier to justify bringing a Mac into a DOS-oriented office but it also will be easier to use it once it's there.

John is quick to point out that he intends to treat platforms objectively in his new column, which, in addition to Mac-to-PC connectivity, will also cover UNIX and RISC platforms. "I'm not a Mac bigot. Believe it or not, there are some things the PC is better suited for." For example, it may be possible to find DOS programs for highly specialized tasks when nothing Mac-based is available; also it's still a lot easier to program for DOS than for the Mac (or for Windows).

But expect John to maintain a healthy skepticism about the very idea of cross-platform products. "I hope to dispel some myths about cross-platform compatibility and point out when working across platforms is not the best solution to a problem. Sometimes using a separate product that connects platforms is the better way to go."



MacUser technical editor and connectivity columnist John Rizzo will be helping improve foreign relations with his detailed advice on how to get Macs and PCs talking to one another.



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CIRCLE 61 ON READER SERVICE CARD.

LETTERS



Rob Wintler, of Los Angeles, wonders if he's stumbled on a conspiracy in the software industry: "What exactly does 'Lorem ipsum dolor sit amet' (often seen in software ads) mean? It looks like Latin, but where did it come from? Did software companies sit down and say, 'OK, we're all going to use this Latin phrase in our ads.'?"

Relax, Rob; the use of pseudo-Latin phrases to flesh out dummy layouts predates the computer industry. (Strangely, for reasons known only to William Safire, it's known as greeking.) Meaningless text is used, presumably, so you won't be distracted by any actual content in the layout; we understand that software ads in the Vatican (and other Latin-speaking countries) use text from the speeches of Dan Quayle instead.

 Write to Letters to the Editor, c/o MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404, or post your letter on the MacUser Forum of ZiffNet/Mac, our on-line service. All letters become the property of MacUser, and we reserve the right to edit any letters we print. Please include a return address and a daytime phone number.

The Newton Testament

I enjoy reading John Dvorak's column every month and then saying how closed-minded the man usually is. Take, for example, Dvorak's column on Apple's forthcoming hand-held Newton devices ("I Sack Newton," September '92, page 394). Just because technology has advanced slowly for years doesn't mean that it can't suddenly move in leaps and bounds.

Apple is right to try something new and revolutionary — such as Newton. If it doesn't catch on,

store it in some closet until the time is right to try again.

And who's to say that Newton won't catch on? Once the gadgeteers start buying them

and figuring out uses for them that even Apple hasn't guessed, businesses will begin to purchase them as well. Prices will drop with the release of newer models, and the newer models will do even more than the previous ones. Soon the general public will be able to afford and really use the Newton.

Oh, and one other thing. Why did Dvorak use the word *sorry* in his column so many times? Perhaps he wanted to apologize in advance to the dozens of letter writers who'll surely pop responses into his mailbox. *Sorry*, but you went too far this time, Dvorak.

David Peck
Silver Spring, MD

What, Me Wordy?

Your June article on choosing the right word processor ("Key Words," Buyer's Guide page 18) didn't answer one question of vital

Dear Mr. Sculley...

The letters are still rolling in by the bagful in response to the question we posed in our June issue: "Which Mac model offers the best balance of price and performance?" The LC garnered the most votes, but some readers favored other members of Apple's low-end family.

Pamela Spratlen, of Guatemala City, Guatemala, bought a Classic II and couldn't be happier. "I exchanged Microsoft Word and Excel for ClarisWorks, and it meets my needs perfectly. Maybe someday my computing needs will progress (devolve?) into a need for more power, color, speed, screen size, slots, and features galore. But for now, the Classic II meets all my needs and I learn something new almost every day."

Henry A. Lavagnini, a ZiffNet/Mac respondent, prefers that old war-horse the SE/30. "It's certainly far superior to the Classic II. The SE/30 has a 68030 processor, a built-in FPU, a PDS slot, eight SIMM slots, and replaceable ROM (sadly, an unused feature)."

Don O'Malley, of Santa Barbara, California, rallied behind the Mac Plus. "I have two monitors, 4 megabytes of RAM, an accelerator, two hard drives, and two printers — plus the potential for a modem and a CD-ROM drive. System 7 hums along nicely, and I can run any program I need in order to take care of my business and personal requirements. What more do I need?"

Don admitted that color would be a nice addition, but he can wait. "I'll get color four years from now, when the current line of bigger, faster Macs becomes affordable because they are old and in the way, just like everyone considers the Plus to be."

But Edlo C. Solum, of Northfield, Minnesota, thinks the Plus is just dandy: "I haven't read many letters from older Mac users such

as myself, a retired 78-year-old. I'm happy as a clam with my Mac Plus and System 6 and have no interest in upgrading. I write more letters in a month than I used to write in a year. The congressmen can see my mail coming."

There's one cynic in every crowd, however. Jay Feinberg, of Cleveland, Ohio, doesn't think *any* of the current Mac models offer a satisfactory balance of price and performance.

"Apple is out of touch with the rapidly declining prices for personal computers. An LC II 4/80 with a 13-inch Apple color monitor and extended keyboard costs about \$2,500, but a 16-megahertz 386 PC with a 14-inch color monitor sells for less than \$1,000. The situation is even more ridiculous when you look at accelerator boards. It makes no sense to overpay for a low-powered Mac and then pay another \$1,000 to accelerate the machine to a respectable 33 megahertz."

Jay currently has a Mac SE and wants to upgrade, but he said, "If Apple doesn't make significant improvements in price/performance very soon, I will switch over to PCs with Windows."

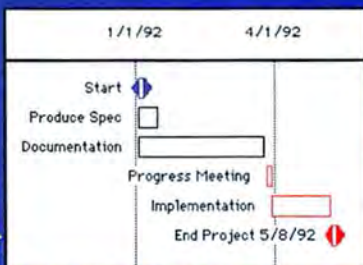
Speak Up:

Several readers have written lately to chastise MacUser for conspiring with Apple and the Mac industry in foisting unnecessary jargon — *windoid*, *jaggies*, *WYSIWYG*, and the like — on our readers. What jargon would you like to see banished from the Apple vocabulary?

Send your thoughts to Dear Mr. Sculley, c/o MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404.

Not Just Another Pretty Gantt Chart

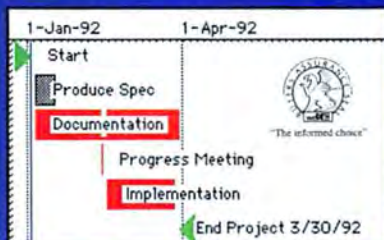
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LETTERS

importance: How well do the program's documents feed into QuarkXPress or PageMaker?

Many of us use word processors only to produce simple documents or envelopes. Whenever we want to do something fancy with text, we feed the document into a page-layout program, where control of columns, leading, graphics, drop caps, and so forth, is far easier and more precise. This means that most of us use Microsoft Word, although we don't use 90 percent of its features, because it is the only word-processing program that converses fluently with the page-layout programs.

I'd love to use a simpler word processor, such as WriteNow, rather than a bloated behemoth such as Word. But WriteNow doesn't work well with QuarkXPress, so I'm stuck.

Allan S. Hjerpe
Sevierville, TN

Why can't someone produce a modular word-processing program so that each of us can buy just the features we need?

I don't need RAM-eating features such as tables, tables of contents, indexes, painting tools, and outliners. Those of us who write letters, poetry, or articles would like a simple word processor that provides quality typography. We need an editable kerning table for each typeface, and the kerning values that are built in to typefaces should be used by the word-processing program.

We should be able to select (in units) the word spacing we prefer and have a choice of fixed spaces, such as em and en. We should be able to letterspace a line and to indicate automatic hanging indents and hanging punctuation.

These features, and many that are already available, should be available as options, just as power brakes and air bags are options when you buy a car.

It's ridiculous that desktop publishers invest thousands of dollars in machines that are little better than a manual typewriter. With so many quality typefaces available, we should be able to send out a decent-looking letter.

Walt Abbott
Yarnell, AZ

Easy Does It

I find it amusing that a Mac magazine would look at an icon-based environment, namely Double Helix, and use the words "easier for beginners" several

times in describing it ("Database Strategies: Relational Databases," June '92, Buyer's Guide page 60).

If something is easy for beginners, it's usually easier for normal users, power users, and even programmers. That's why I use the Mac instead of a PC. That's why I use Think C instead of MPW. And that's why I use Double Helix instead of 4th Dimension.

With the Mac's visual interface, I can learn an application once, not use it again for a year, and then pick it up again with little loss of capability. I can't do that with a command-line interface such as DOS. I can't do that with 4D's procedural language, but I can do that with Double Helix.

Dan Kuchta
Brockport, NY

Not-So-Easy Publishing

I'd like to add a strong warning to your review of Publish It! Easy, which appeared in the June issue (page 81). I was unable to install the program and suspected INIT conflicts. Sure enough, Timeworks' technical support told me the program has major conflicts with at least nine INITs, and the only solution is to get rid of them permanently. If you reinstall the INITs, problems can crop up and cause you to lose saved data.

I appreciate the honesty and straightforward responses of the Timeworks technical people but question why this problem has never, at least to my knowledge, been documented. When you expect a good product — based on a four-and-a-half-mouse rating — and are disappointed, it's like getting a McDonald's burger at The Four Seasons.

Thomas A. Huebner
Hillsdale, NY

It's impossible to test every combination of INITs with a particular program. I had 15 INITs installed and encountered no problems with Publish It! Easy.
— GW

Addressing the Issues

I'm writing in regard to your address — 950 Tower Lane — and your ZIP code — 94404. It strikes me as strange that the Quadra line is the first Mac to go with a tower case and that the latest model number is 950. And your ZIP code has all those fours in it (as in Quad). Any coincidence here?

James E. Rodriguez
West Covina, CA

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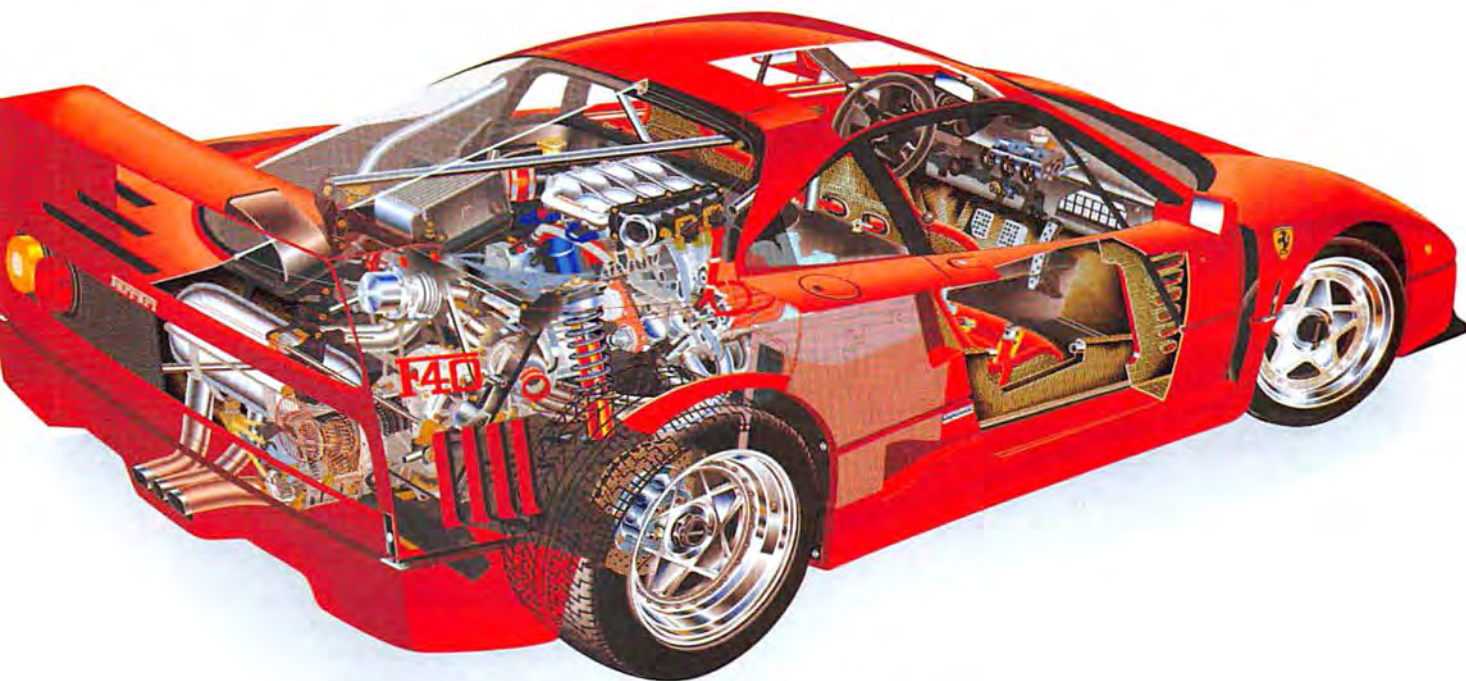
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LETTERS

It's a good thing for Apple's future product plans that we moved our offices a few years ago from Marsh Drive. — JZ

Over the Top

In "How to Buy a Laser Printer" (September '92, page 253), the author states that you can check the number of pages that have been printed by looking at the startup page. This is not always true.

Laser-printer page counters, like a car's odometer, turn over after a few hundred thousand pages and are "cleared." They also clear any time the laser printer's logic board is replaced and possibly when the printer is serviced. Better to ask about the printer's history and check the wear and tear on the rollers.

Walter Vose Jeffries
West Topsham, VT

Color Control

Like an expectant father, I had been anxiously awaiting *MacUser's* review of In Control (August '92, page 61). You rewarded In Control with a great review. However, a color screen shot of In Control was reproduced in black and white; it looks a bit strange.

In the same issue, John C. Dvorak's column reminds us that style is as important as substance. On a black-and-white display, the buttons are simplified for a cleaner look so that In Control's stylish looks are every bit as good as its powerful features.

Version 1.1 of In Control, which contains some printing and display enhancements as suggested in your review, is now available. Readers can contact us at 617-776-1110 for upgrade information.

Dan Chadwick, President
Attain Corp.
Somerville, MA

Display's the Thing

Your August '92 review "Perfection for Pennies: Autosynchronous Monitors" (page 158) was very good. But it skipped over one significant issue for buyers: additional and maximum pixel dimensions when operating in a Mac environment. It is useful to know what other resolutions a monitor can support, given the various Mac II video cards that support multiple resolutions.

The article briefly alluded to this situation by noting that "Autosyncs can accommodate multiple resolutions . . . Most of the monitors we looked at can also display the popular 832-x-624-pixel

resolution." But it did not say which monitors were capable of supporting additional pixel resolutions/ dimensions in a Mac II environment.

What's the compatibility between the autosynchronous monitors you reviewed and the various third-party multiple-resolution video cards on the market today?

Scott Pector
Naperville, IL

You'll find information on the compatibility among several third-party cards and various display timings and resolutions in Table 2 ("Compatible Monitors") of the May '92 lab report "Chasing Rainbows: Accelerated-Video Cards" (Buyer's Guide page 16). — MF

Business Plans

In "How to Succeed with Business Software" (June '92, Buyer's Guide page 4), you mention two commercial business-plan programs. There's also a relatively new shareware offering called Business Plan Master, which enables users with word-processing and spreadsheet programs to write a complete business plan. It's available through most of the normal shareware outlets, including CompuServe.

David A. Works
via ZiffNet/Mac

In Praise of MultiDisk

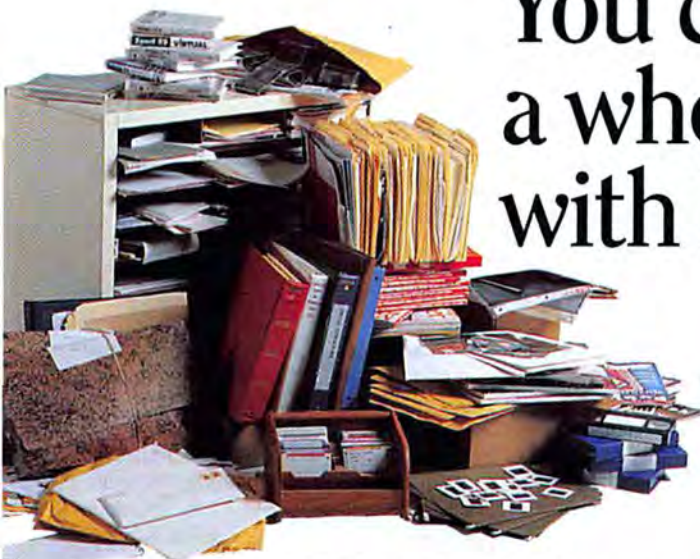
Has Steven Bobker ever used MultiDisk, the hard-disk soft partitioner he calls "the weak link" in ALSoft's Power Utilities package ("Collective Bargains," June '92, page 217)?

I've used MultiDisk since early 1989 and haven't had a single problem, despite several system upgrades (including System 7). It has never lost any data or failed to find a partition. MultiDisk allows partitions to be locked, encrypted, password-protected, set to auto-mount, and even resized. It can also create partitions over discontinuous blocks. MultiDisk is one of the best Mac utilities ever created and one of the best reasons to get Power Utilities.

Murray Sagal
Moose Jaw, SK
Canada

MultiDisk is a soft partitioner and thus can't give you the performance advantages and other benefits (such as better data integrity) that hard partitions offer. The best soft partitioner, which happens to be MultiDisk, is not as good as any hard partitioner I've ever used. — SB

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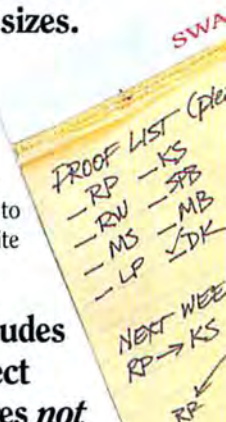
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LETTERS

The Sound and the Fury

As a musician and MIDI evangelist, I was glad to see the three music-software reviews (Pro Tools [page 89] and SoundEdit Pro and AudioTrax [page 66]) in the September issue, but I was very disappointed after I read them.

Your evaluation of Pro Tools was far too optimistic. Although the concept is very exciting, the software is not only inordinately buggy but much of the user interface is also very badly thought-out.

The reviews of SoundEdit Pro and AudioTrax contained some factual errors. Although SoundEdit Pro can open high-fidelity 16-bit files, it can't play them on any existing 16-bit hardware, so they come out sounding just like old-fashioned 8-bit, 22-kilohertz files. Older versions of SoundEdit could do exactly the same thing. And the program's performance is quirkiest than the reviewer would have us believe — the sound skips and jumps unacceptably under numerous circumstances, not just the one he describes.

AudioTrax can play 64 — not just 16 — tracks at a time. I also disagree that 8-bit audio is "barely acceptable" for voiceovers — from the Mac's speaker, yes, but with decent outboard speakers, it is more than acceptable not only for voice but also for sound effects and even background music.

Reviewing AudioTrax and SoundEdit Pro together was an excellent idea, because they complement each other very well, but your reviewer seemed to miss the point of this synergy and merely complained that AudioTrax doesn't provide any effects. In my experience, they are highly complementary tools for creating low-budget audio for multimedia.

Paul D. Lehrman
via ZiffNet/Mac

Check Mate

I have been using CheckFree ("Check It Out," September '92, page 29) for three years and have had no problems with it. This service has become a great tool for me. I travel extensively, and the ability to schedule payments ahead of time is wonderful.

Also, you should check out your math: The \$9 charge for every 20 transactions works out to \$3.20 when you subtract the savings on postage. Try to find an accountant who will write 20 checks for \$3.20 a month! Perhaps Andy Ihnatko needs to spend less time watching the

Disney Channel and more on research.
Kenneth O'Neill
Bedford, TX

C'mon, Andy. If CheckFree's our biggest problem as Mac consumers, maybe we don't need a consumer advocate.

Andy's biggest hassle with CheckFree seems to be the cost; he must have a deal with the postal service to deliver his mail free. By the time you add in postage and the cost of a check (my wallet checks, for instance, cost \$20 for 200), 20 checks cost \$7.80. That's only \$1.20 less than what you describe as CheckFree's "phenomenally slick service." That's if you write your checks by hand, which means you either waste a lot of time duplicating effort or you use your Mac as a hat rack. Laser checks are even more expensive, and you have to buy envelopes for them, so you probably would come out ahead using CheckFree.

People who have had delayed posting of payments and other such problems probably didn't follow CheckFree's advice: During the first month or so, send your payments early and then check with the merchant to see when it gets posted and use that information to time your payments. If Andy feels compelled to send all his checks at the last minute, you probably aren't paying him enough.

Leslie Marsh Harber
Houston, TX

Your points are (a) valid and (b) nearly identical to what I wrote in my column. CheckFree certainly isn't Mac consumers' biggest problem — it's QuickTime-savvy word processors that require 32 megs of memory and four Rocket cards just to get past the title screen. — AI

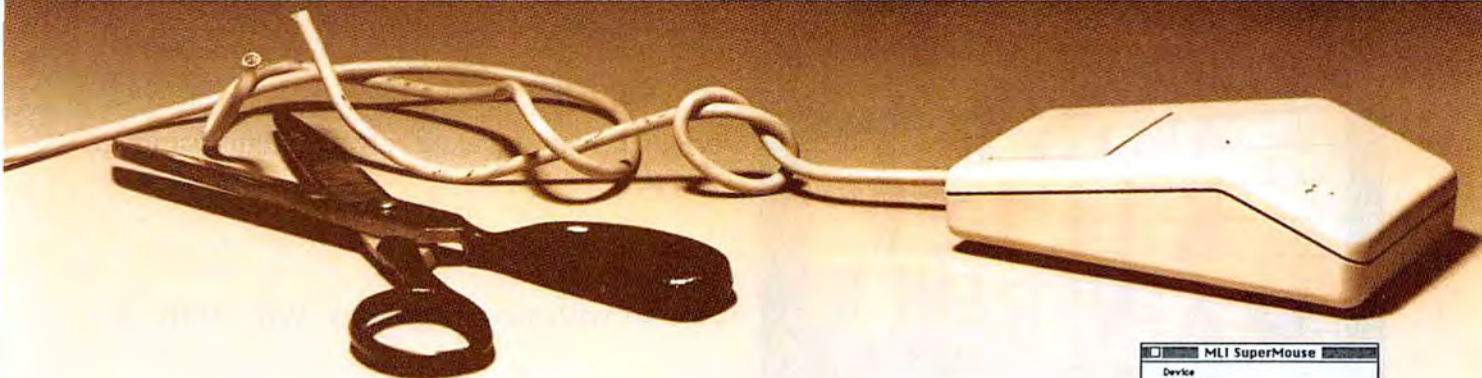
Clarifications

Contrary to the information on page 256 of the September '92 issue ("Peak Performance"), the publisher of DiskExpress II is ALSoft (P.O. Box 927, Spring, TX 77383; 713-353-4090).

The handwriting fonts produced by Signature Software (August '92, page 181) are PostScript Type 3 fonts and are, consequently, incompatible with ATM.

An incorrect phone number was listed for Microsoft in the Excel 4.0 review (September '92, page 57). The correct numbers are 800-426-9400 and 206-882-8080.

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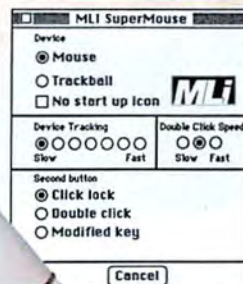
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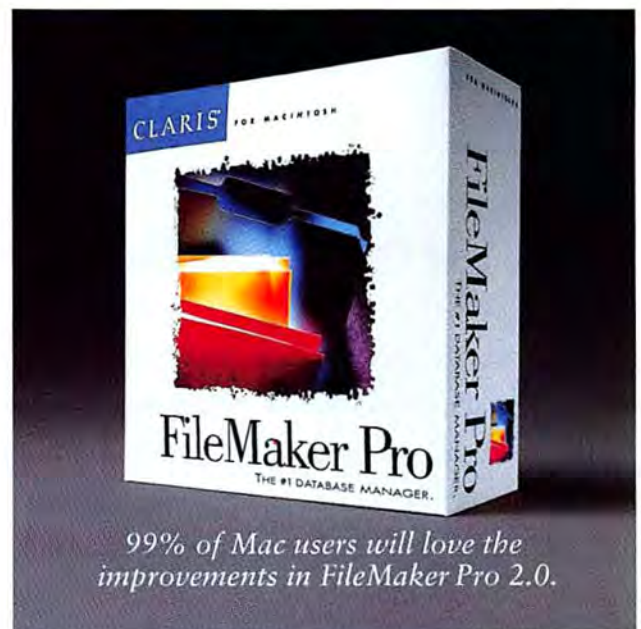
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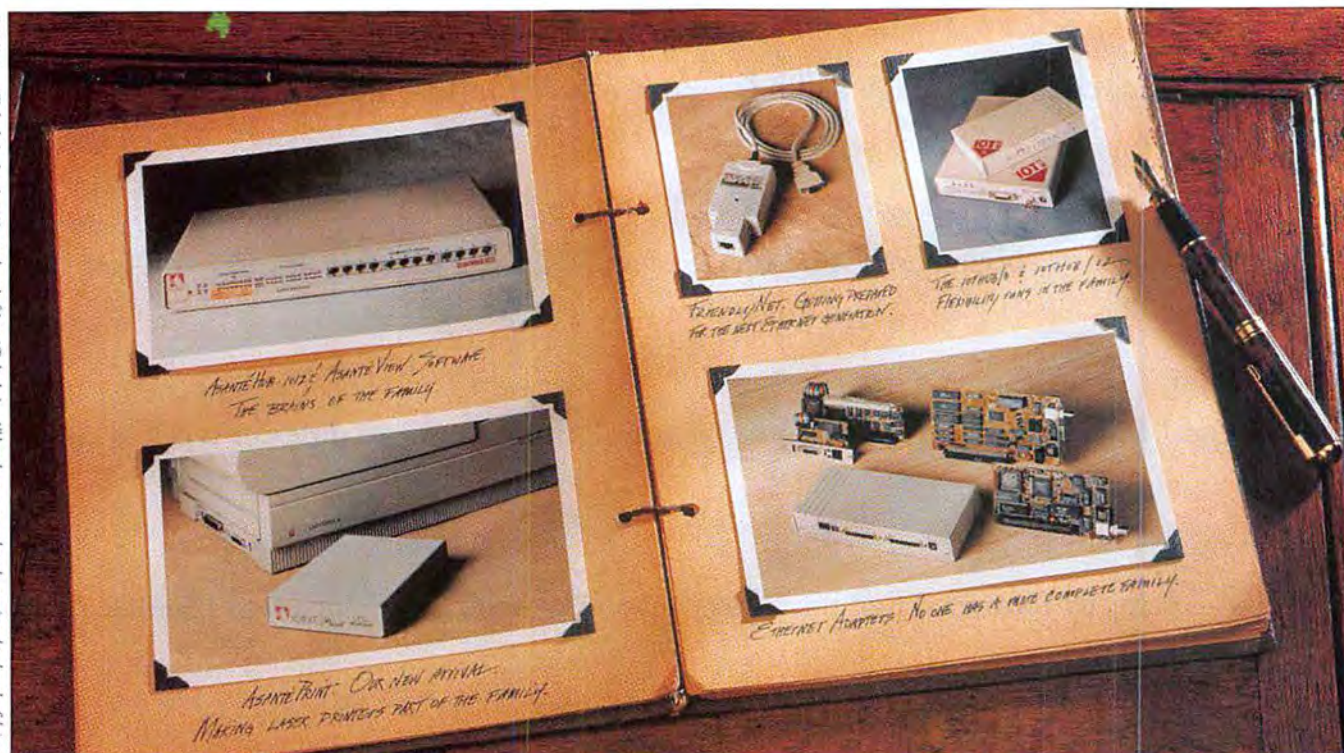
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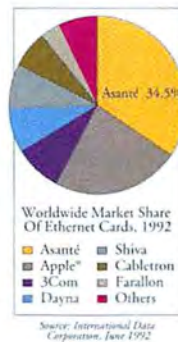
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The Winning Platform



Two of the hottest issues of this political season — change and the economy — should be part of your own desktop-policy platform.

Nowhere in the Constitution does it say a word about computers; your Macintosh is not endowed with an inalienable right to democratic representation. On the other hand, the person sitting in front of your Mac — that's you — is going to find life, liberty, and the pursuit of reliable backups a whole lot simpler if you make sure that the unelected officials in charge of your computer network are implementing policies that have your best interests in mind.

And as in the presidential campaigns, the key issues are familiar themes: the need for change and improving the economy.

Loose Change

Several policy issues revolve around the issue of change. In most cases, users operate with what you might call a loose-change policy, both because change happens serendipitously and because nobody's willing to spend more than loose change to tighten things up.

How do you decide when it's time to make changes in your Mac system? When is it time to upgrade your CPU? Should you opt for the latest and greatest upgrade of your applications? When should you switch to a competing application?

In a group of any size, there's bound to be some political friction. On one end of the political spectrum are the liberal technocrats, whose Macs are in a constant state of flux — and chaos — thanks to a steady diet of buggy new software and hardware. At the opposite end are the ultraconservative Luddites, who favor stable, tried, and true — but hopelessly antiquated — products such as the 128K Mac and MacWrite 1.0.

The network manager — or whoever the involuntarily elected official is for your workgroup — has to manage the political rivalry between the different user parties. The most common solution to the schism between liberals and conservatives is the libertarian approach: It's your desktop; you control your own destiny.

But the libertarian approach fails on several counts. It fails to ensure that the conservative users will get the best possible use from an expensive investment. It fails to prevent wannabe power users from getting in over their heads to the point where they're losing data and overly taxing the technical-support crew. And it totally fails if your work requires collaborative input from all parties.

Going for the Gold

At *MacUser*, our solution is to use a "Golden" system and a folder of "Golden" applications. The Golden System folder contains the latest officially sanctioned version of the system, including all officially sanctioned extensions, fonts, INITs, and so on. Likewise, the Golden Application folder includes the latest officially sanctioned version of all officially sanctioned applications.

All production-oriented work is done with Golden software only. Only problems that arise from Golden software are officially troubleshot by our tireless network manager, Stephan Somogyi, who also ensures that all software in the Golden folders is legit — that we have the appropriate site license for each new version of anything that goes into these folders. Nothing goes Golden until it's been thoroughly tested for compatibility with the rest of the Golden network at *MacUser* and at the various service bureaus to which we transfer files.

Anyone on the network is free to install other applications or to run their system under alternative system software, but anything that's headed off their desktop has to be Golden.

This isn't a perfect solution. After Microsoft Word 5 was released — but before it had been certified Gold — many of our editors upgraded immediately. Before dropping files onto our production server, they diligently opened the documents and saved them from within Word 4, because Word 4 was the Golden version. Word thought those files were version 4 files. Unfortunately, PageMaker knew the difference between a native Word 4 file and a pseudo-Word 4 file, giving our Golden system a severe case of hiccups (until we finally upgraded the Golden system to accommodate Word 5).

In Case of Emergency

The network manager should also formulate and communicate contingency plans for crisis management: What happens when things go wrong? Does your software entitle you to technical support from its publisher? Should users make the phone call, or should they route it through the network manager? Do your users know the phone numbers? Do they know what kind of information they'll need to give the tech-support person on the other end? Do they know their applications' names, versions, and serial numbers?

The Information Economy

The catchphrase of the industrial revolution was, "Time is money," but *information* is money in the postindustrial age. And unlike the raw materials of the industrial era — manpower and natural

resources — information costs money only once. It can be used and duplicated without additional expense. But like the zillions of kilowatts of solar energy ceaselessly pounding the earth's surface, it has yet to be harnessed efficiently.

Harnessing information takes place on both a personal level and an organizational level. On a personal level, one of the best examples of unharnessed information is the pile of business cards in your desk drawer neatly bound up by a rubber band.


In Japan you can buy a small, dedicated business-card scanner and drop a stack of cards into it; using optical character recognition, the device stores all

Like harnessing solar energy, capturing the flow of information remains an elusive opportunity.

the information on a floppy. Until such devices are widely available (or until business cards routinely come with computer-readable magnetic stripes on them, like those of credit cards), the publishers of PIM (personal-information management) software have an opportunity to bolster their business by providing such a service for you.

The PIM publishers make the mistake of trying to sell you PIM software. You don't buy PIM software because you like PIM software; you buy it because what you really want is data. But none of the software publishers are trying to sell you that. Instead of just selling you an empty database, they should bundle a ticket in with the software that entitles you to send them a shoe box of, say, 500 business cards and get them back on a floppy. Or they might include a coupon good for a discount when you call your local Kelly Temps service to scan or enter that shoe box of cards in your own office.

Organizations also need to change the way they manage the flow of information. Ask any flight attendant on any airline that serves Las Vegas and San Francisco about Comdex, and they'll tell you that their airline should schedule extra flights that week. But that information never reaches the people in charge of scheduling flights.

The role of computers — and employees — isn't to simply amass and store data. The goal should be to turn each user's desktop into an information dashboard. That's the key to making your Mac a winning platform. 

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Performance Anxiety



To make sure you actually get the performance you're paying for, you've got to know what the computer-advertising gobbledygook really means.

No one wants to be slow. Throughout humanity's experience of selling things to itself, few phrases have caused consumers to whip out checkbooks and wallets faster than this one: "Ours is faster." It doesn't matter what you're trying to sell — cars, antacid tablets, sacks of wet peat moss — if you can somehow suggest that shoppers buying your product can go to bed half an hour earlier than those who bought Brand X, bang, you have a sale.

So when someone in a school yard tries to use that magic phrase on you, *be afraid*. Be very, very afraid. It's usually that most insidious of lies, the lie that has a nugget of truth hidden inside it somewhere. The key to evaluating speed claims is in recognizing what *kind* of speed the manufacturer is talking about and then deciding whether you can actually reap any benefit from it. I can think of at least three technologies where the faster-must-be-better argument tries to separate you from your sawbucks: modems, accelerators, and new CPUs. Let's look at them in the approximate order of the amount of money you could end up wasting.

Probably the most blatant speed-weasel is in advertisements for modems. With connect charges for some commercial on-line services running at \$12.50 an hour and up, telecommunications is one area in which time truly is money. The money you spend for a faster modem will almost certainly be absorbed by the money you save on your monthly bill eventually, but be sure you're really buying a high-speed modem. If the modem features V.32 or V.32bis, it's the real McCoy. Those are two international standards for high-speed telecom, with V.32 offering speeds as high as 9,600 bps and V.32bis going all the way to 14.4 Kbps. If the ad reads "9,600 bps! \$28!!!" without mentioning these standards, though, hang on to your money. One popular dodge is to advertise a high-speed *fax* modem as being 9,600 bps, but the top speed applies only to fax transmission; as a standard data modem, it might give you a top speed of only 2,400 bps. The second weaselish technique is to advertise the phrase "9,600 bps!" in big letters and the word "throughput" in tiny type nearby. Don't be fooled by a modem that touts V.42bis *data compression* (unless it also features the V.32 or V.32bis modulation protocol), which *theoretically* can transmit four times as much data at 2,400 bps as an ordinary modem can;

in reality the speed increase is anywhere from nothing to two times normal, and anyway, It Just Ain't the Real Thing.

Even if you do have the real thing, don't count on being able to use the higher speeds with commercial pay-as-you-play on-line services. As of this writing, America Online offers only 2,400-bps access and CompuServe's access system makes any speed greater than 9,600 impossible. CompuServe also doubles its usual 2,400-bps hourly charges for 9,600-bps users. It's still a bargain — operate four times as fast for only twice as much — but if you spend most of your time idly reading messages as opposed to downloading files, you could actually wind up paying *more* every month.

With these modem-speed claims, it's a simple situation; you recognize a company's blatant attempts to flimflam you, so you avoid 'em like glazed yams on Thanksgiving. When the subject is speed enhancements for your Mac, things get dicier. There's a bewildering array of speed enhancements for any Mac — you can pay anywhere from tens to thousands of dollars for them, and about all of them actually work to some extent.

The first thing a salesperson is likely to shove in your face — naturally, the most expensive of the lot — is an accelerator board. Whether you plug it in as an expansion board or clip it on as a daughterboard to an ancient Mac, it's a self-contained microprocessor that takes the place of whatever brain was originally installed in your computer. All too often, salespeople tout the speed of the new microprocessor as the sole sledgehammer proof that you'd be a complete fool to stick with your old hardware. There's a grain of truth to this. On a test bench, a 33-megahertz 68030 can work much faster than a 16-megahertz model, but to paraphrase a Vulcan proverb, "CPU speed is only the start of enhanced performance, not the end." First of all, the speed of a CPU is only one component of The Big Picture; many other elements of your system can have a serious impact on your Mac's performance. Second, you've got to take into account what I call The Duhhh Factor.

The Duhhh Factor

For those who are into high-octane graphics processing, ninja-level number crunching, and the like, an accelerator board (or a new Mac with a faster processor) will help

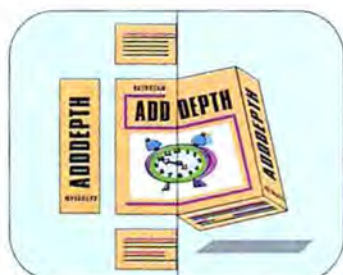
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ANDY IHVATKO

loads; otherwise, The Duhhh Factor will rob you of most of the benefits of the speed enhancement. For most of you, as you go about your business doing non-intensive word processing, databasing, spreadsheeting, and all those other things you promised your boss, spouse, or both you'd do with your computer, the Mac spends more time waiting for you than you spend waiting for the Mac. Overall system performance of your IIfx will shoot into the stratosphere if you upgrade to a 50-megahertz 68030, but that gain can be completely annihilated when you spend two seconds at the end of a sentence trying to figure out how you should finish the paragraph. Instead of waiting for you in 25-megahertz cycles, it's waiting for you in 50-megahertz cycles. Right here, trying for a good joke that never came, I would've wasted roughly \$1,800 in upgrades.

A variant of the faster-processor sale is the *different* processor. The 68000 chip begat the 68020, which fathered the 68030, and now we have the 68040. With new processors comes the usual rumbling chant of "More power! More power! More power!" Generally, though, greater speed isn't the primary benefit of The Latest CPU. For instance, adding a 68030 to your Mac II will probably speed things up, but the chip's true benefit will be your newfound ability to use 32-bit addressing and virtual memory under System 7.

Equally confusing to some is the prospect of a math coprocessor. Call it a floating-point unit, call it a 68882 chip — whatever its name, for those Macs that accept one, it'll be wonderfully cheap and powerful for a few people and only wonderfully cheap for everyone else. It's a processor dedicated to the task of deep math operations, performing floating-point arithmetic much faster than your CPU can and freeing it up to work on other things while the 68882 chugs at the answer. Unlike an accelerator board or a new processor, it doesn't uniformly enhance system performance. As you might guess, the benefits are striking if you're doing lots of math-intensive stuff — working with spreadsheet programs comes to mind, but don't forget that graphics programs such as Illustrator, FreeHand, and especially Photoshop do extensive number twiddling — but the speed increase will be almost negligible if you're chiefly a database search-and-retrieve type.

If you upgrade to a faster processor or a different processor entirely, add a cache card and a math coprocessor, then surely you'll have all the bases covered, won't you? Negatory. The benefits of all that stuff you bought can be completely offset by something as simple as having too little memory. Because most applications make up for low memory by keeping elements of themselves on your hard disk until needed, a Mac rocketed to Earth from the dying planet Krypton but containing only 4 megs of RAM is always in danger of having its doors blown off by a far less capable machine that has more memory. Always remember, then, that no matter how much you spend, no matter how much junk you install and how powerful your final system is, *any speed increase is only hypothetical until you do your daily business with the upgrades installed*. It's vitally important to try out a product with the exact same software you count on every day, working on the exact same documents with the same amount of RAM. You'll read all kinds of boasts in a product's literature — *x* many dhrystones, that long for a sieve, so many MIPS — but these are just dry tests that may reveal nothing about how well the product performs in real life. Furthermore, a True to Life test may bring to light incompatibilities between the product and your software. It's a true bummer to get your Mac Classic back from the dealer after a permanent upgrade has been installed and then find that the only software you can run is the Finder and sometimes, maybe, the Calculator DA.

My Two Cents' Worth

The lesson to be learned from all this is that you should treat *every* speed claim with the utmost suspicion. Never pull out the checkbook or start reading off credit-card numbers until you've tested whatever it is with the software and files you use every day and, if applicable, on a hardware configuration similar to the one you use.

It's just as important to recognize that a gizmo that makes your *Mac* work faster won't necessarily make *you* work faster. You have to find out where the bottlenecks in your system are and crush them mercilessly. You can solve some problems by upgrading to a Quadra 950. You can solve others more cheaply by buying a dorm fridge for your office so you won't have to go downstairs to the kitchen every time you want a Coke. ☐

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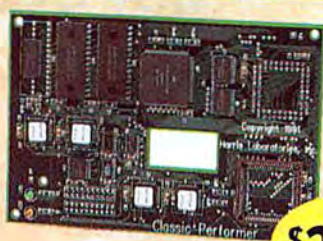


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Cache-In 50

Accelerate your ci to warp speed! Cache-In 50 from Applied Engineering blasts your Ili's speed beyond the speed of the Ili's! You can expect to run as much as 70% faster. At the heart of this acceleration powerhouse is a 50MHz CPU. Other features include low power consumption design and surface mount technology. Comes with the manufacturer's full 1-year warranty. Applied Engineering #04071

Upgrade Your Classic



\$248

The Classic Performer

The Classic Performer is designed to turn your Mac Classic into a serious business tool. With its 16MHz architecture and 96K cache it doubles your processing power, accelerates program loading and increases file sorting speed. It installs in under 15 minutes and carries a manufacturer's lifetime warranty. Harris Laboratories #04646

Upgrade Your Ili's



\$308

ComboCache Ili's w/ Math Chip

Acceleration, speed and expansion, all in one chip! The ComboCache Ili's is more than a fast card... It's a 4-in-1 upgrade that speeds up your Mac Ili's by up to 40%! The ComboCache Ili's also gives you two PDS expansion slots. Plus, you get a 20MHz math chip for flying through spreadsheets and crunching numbers. DayStar Digital #05004



\$1574

PLI Infinity 3.5" E Optical Drive

The next phase of optical technology has arrived. The PLI Infinity Optical read/write drives redefine high-capacity data storage. You can store up to 128MB of data on a single cartridge that is almost indestructible, and weighs less than five diskettes. Backed by the manufacturer's 2-year warranty with support provided toll-FREE. PLI #05785 ✓
#00590 Sony Optical Disk\$60

AMAZING PRICE!



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PS17 MicroLaser Printer

Finally, you can afford to have true Adobe PostScript printing right at your own desk. With the compact, easy-to-use MicroLaser Printer, you can print crisp, professional-looking, laser printed documents from any MS DOS or Mac machine using the standard AppleTalk, serial or parallel interface. The PS17 prints at a speedy 9ppm. Texas Instruments #04096



\$888

ThunderStorm

Put some thunder in Adobe Photoshop with ThunderStorm, the accelerator for Adobe Photoshop that provides the industry's fastest performance for crucial Adobe Photoshop filters and functions. SuperMac #05797 ✓



\$94

Norton Utilities 2.0

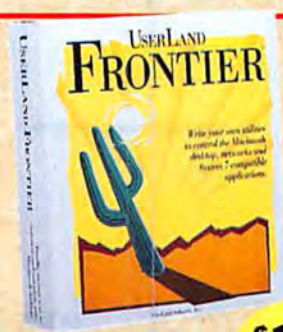
The Norton Utilities Version 2.0 offers intuitive tools for protecting your data and enhancing your Mac's performance. With these tools installed, it's easy to keep your computer running at peak efficiency, and even the most difficult disk problems aren't a problem. If you depend on your computer, depend on the Norton Utilities to protect your software and your data. Symantec #04890 ✓



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#02785 After Dark 2.0\$28
#04053 More After Dark\$22



\$184

UserLand Frontier

UserLand Frontier is the first scripting software that allows you to write your own desktop utilities to customize, automate and simplify your Mac. With it you can write your own utilities to control your Mac desktop, networks and System 7-compatible applications. UserLand #05323 ✓

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- 2-Year limited warranty: Quantum and SyQuest
- Driven by award-winning software
- All DPI drives are covered by a complete 60-day money back guarantee. If, for any reason, you are not completely satisfied



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with your drive, call us for an RMA number and return it to us for a full refund.

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MacTurbo 2400 Mini Modem

Our MacTurbo Modem has all the features you would expect to find on modems twice the price—and at 6" by 4" it's compact enough to easily tuck away in a briefcase. An eight-light status panel keeps you informed as to the status. Nonvolatile memory stores phone numbers even when the modem is turned off. MacTurbo #00408 ✓

#00977 MacTurbo 24/96 Mini Fax/Modem ✓ \$149

BEST BUY!

SKU#	Formatted MB	Drive Type	Drive Mechanism	Access Time	Throughput MB/Sec	Zone PRICE	COST/MB
04880	52	3.5" LPS	Quantum	17	2.0-4.0	\$358	\$6
05786	85	3.5"	Conner	17	4.0-5.0	428	5
04881	105	3.5" LPS	Quantum	17	2.0-4.0	498	5
05787	120	3.5"	Conner	19	4.0-5.0	554	5
05788	212	3.5"	Conner	12	4.0-5.0	788	4
04874	240	3.5"	Quantum	16	5.0-10.0	968	4
05817	425	3.5"	Fujitsu	12	4.0-5.0	1358	3
05366	520	3.5"	Fujitsu	12	4.0-5.0	1584	3
04451	44	5.25"	SyQuest	19	1.2	528	12
04886	88	5.25"	SyQuest	19	1.2	658	7



SyQuest 44MB Removable Cartridge

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#05442 SyQuest 44 MB 5 Pk \$328
#05443 SyQuest 44 MB 10 Pk \$649

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MODEL	YOUR MAC	# OF SLOTS	MB AFTER UPGRADE	# OF KITS NEEDED	KIT #	YOUR COST
PLUS/SE	Plus SE	4	2	1	05653	\$68
		4	4	2	05653	\$136
CLASSIC with adapter	Classic Classic	2	2	1	03824	\$78
		2	4*	1	05653	\$68
Classic II LC/LC II	Classic II Classic II LC/LC II	2	4	1	05653	\$68
		2	6	1	05655	\$138
		2	10	1	05656	\$258
		2	10	1	05656	\$258
SE/30, IIsi	SE/30 SE/30 SE/30 IIsi IIsi IIsi IIsi	8	8	4	05653	\$272
		8	16	1	05654	\$498
		8	32	2	05654	\$996
		4	5	2	05653	\$136
		4	9	1	05655	\$138
		4	17	1	05654	\$498
MAC II, IIfx, IIfx, IIfx	II IIfx IIfx IIfx IIfx IIfx	4	65	4	05338	\$3,112
		8	8	4	05653	\$272
		8	16	1	05819	\$698
		8	8	4	05653	\$272
		8	16	1	05654	\$498
		8	32	2	05654	\$996
MAC II fx	IIfx IIfx IIfx IIfx	8	64	8	00848	\$3,992
		8	128	8	00849	\$5,584
		8	8	2	05659	\$138
		8	16	1	05660	\$498
POWER BOOK	PowerBook 100/140/170 PowerBook 100/140/170 PowerBook 100/140/170	8	32	2	05660	\$996
		8	128	8	05129	\$799
		1	4	1	05391	\$198
		1	6	1	05392	\$278
QUADRA 700 900 950	Quadra 700 Quadra 700 Quadra 700 Quadra 900/950 Quadra 900/950 Quadra 900/950 Quadra 900/950 Quadra 900/950	1	8	1	05393	\$368
		4	4	2	05653	\$136
		4	20	1	05654	\$498
		16	64	4	05338	\$3,112
		16	8	2	05653	\$136
		16	16	6	05653	\$408
		16	64	4	05654	\$1,992
		16	192	16	05338	\$12,448

Accelerators, Memory and Upgrades

Applied Engineering

00289 Cache-In (Ili Cache Card)	194	✓
00833 QuickSilver Ili Cache Card	198	✓
00873 TransWarp 040	1788	✓
03673 Quadralink	204	✓
04072 Cache In 50 w/FPU	1498	✓
04120 Fast Math LC	108	✓
04154 QuickSilver Ili w/FPU	268	✓
04325 TransWarp SE Acel 25MHz w/FPU	724	✓
04735 TransWarp SE 40 MHz w/FPU	1198	✓
04903 TransWarp LC 33MHz	798	✓
04732 TransWarp LC 33MHz w/FPU	998	✓
05356 TransWarp Classic 40MHz w/FPU	1098	✓
05357 TransWarp Classic 40MHz	894	✓
05358 TransWarp Classic 33MHz w/FPU	894	✓
05359 TransWarp Classic 33MHz	754	✓
05360 TransWarp Classic 25MHz w/FPU	754	✓
05361 TransWarp Classic 25MHz	618	✓
05362 TransWarp Classic 16MHz w/FPU	548	✓
05363 TransWarp Classic 16MHz	478	✓
05380 TransWarp LC	468	✓
05381 TransWarp LC w/FPU	598	✓

DayStar Digital

00560 Equalizer LC Virtual Mem Upgr	184	✓
00579 Equalizer LC Virtual Mem Upgr w/FPU	258	✓
05003 Power Math LC	108	✓
00561 Fast Cache Quadra700/900	278	✓
05719 Fast Cache Quadra700/900/950	418	✓
03729 SCSI Powercard w/o Simms	744	✓
03730 Ram Powercard w/o Simms	464	✓
04181 Fast Cache Ili	298	✓
04182 Dual Port Ili w/FPU	164	✓
05004 Combo Cache II si w/FPU	308	✓
05005 Combo Cache Ili	228	✓
00562 Fast Cache PDS /si Fpu+ Adpt	368	✓
05006 Fast Cache Ili (32k)	172	✓ M
02877 Fast Cache Ili 64K Ram	222	✓
05720 SE/30 PowerCache 33MHz	608	✓
05802 SE/30 PowerCache 33MHz w/FPU	748	✓
05721 SE/30 PowerCache 40MHz	844	✓
05803 SE/30 PowerCache 40MHz w/FPU	1028	✓
05722 SE/30 PowerCache 50MHz	1218	✓
05804 SE/30 PowerCache 50MHz w/FPU	1498	✓
04323 Univ. Powercache 33 MHz	598	✓
04634 Univ. Powercache 33MHz w/FPU	744	✓
Powercaches must be purchased w/adpt		
04319 Univ. Powercache 40MHz	618	✓ 1
04320 Univ. Powercache 40MHz w/FPU	998	✓ 1
04321 Univ. Powercache 50 MHz	1178	✓ 1
04322 Univ. Powercache 50MHz w/FPU	1448	✓ 1
Powercache adapters		
04549 Cache Adapter LC	44	✓

04707 Cache Adapter Ili	44	✓
04708 Cache Adapter PDS (SE/30)	44	✓
04709 Cache Adapter II	44	✓
04710 Cache Adapter Ili	44	✓
04711 Cache Adapter Ili	44	✓

NewLife Computer Corporation

04914 NewLife 16MHz w/o FPU Plus&512E	499	✓
04915 NewLife 16MHz w/FPU Plus &512E	579	✓
04917 NewLife SCSI for 128K,512K,512KE	98	✓
04918 NewLife 16MHz w/FPU (SE)	479	✓
04919 NewLife 16MHz (SE)	399	✓
04920 NewLife 25MHz w/FPU (SE)	819	✓
04922 NewLife 33MHz w/FPU (SE)	1789	✓
04923 NewLife 25MHz w/FPU (Plus&512E)	839	✓
04925 NewLife 16MHz % & VID Plus & 512E	719	✓
04926 NewLife SE Video F/Radios FPD	289	✓
04947 NewLife 16MHz w/FPU-Classic	569	✓
04952 NewLife 16MHz Classic	489	✓

Radius

00821 Radius Rocket 25i	1348	✓
01004 Radius Rocket 25i/24X Card Bundle	2498	✓
04207 Radius Rocket	1798	✓
05250 Radius Rocket 33	2178	✓

Networking

Asante

00006 Asante F/Powerbooks 10 BaseT	294	✓
00020 Asante Maccon + 30IE	164	✓
00221 Asante Maccon+Ile w/64K Ram	218	✓
00228 Asante Maccon + 30 IET 64	218	✓
00327 Asante EN/SC SCSI Ethernet	328	✓
00347 Asante Person to Person 10pk	258	✓
00348 Asante 10 T Hub/12	528	✓
00402 Asante Person to Person Zonepk	458	✓
00404 Asante 10T Hub/8	258	✓
00407 Asante Person to Person 2 Pack	98	✓
00510 Asante Maccon 3 SE	218	✓
00511 Asante Maccon 3 Nubus 64K	218	✓
00820 Asante Maccon + 30 IE MC 64	314	✓
03641 Asante Maccon + II E EN	164	✓
03642 Asante Maccon + II ET 64K Ram	218	✓
03646 Asante Maccon + 30 IET	164	✓
03647 Asante Maccon+30ie 64	218	✓
03945 Asante 10T MAU	84	✓
04184 Asante Maccon + 30 IET MC64	314	✓
04334 Asante Maccon+ 30 IET MC	258	✓
04933 Asante Maccon 3 Ili	218	✓
05499 Thin FriendlyNet Media Adapter	84	✓
05500 Thick FriendlyNet Media Adapter	84	✓
05501 10Base T FriendlyNet Media Adapter	84	✓
05502 MacRing 4/16 MBS Token Ring Card Mac II	524	✓
05503 MacRing 4 MBS Token Ring Card Mac SE	394	✓
05504 MacRing 4/16 MBS Token Ring Card LC/LCII	394	✓
05505 MacRing 4/16 MBS Token Ring Card Ili	394	✓

05506 12 Port Intelligent 10Base T Hub	889	✓
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Dayna Communications Inc

00485 DaynaPort SCSI Link	272	✓
00487 DaynaPort SCSI Link-T	272	✓
00488 DaynaPort SCSI Link-3	299	✓
00804 DaynaPort E/Z	264	✓
00305 DaynaPort E/Si	148	✓
00806 DaynaPort E/LC	148	✓
03546 Dayna Etherprint	348	✓
04139 DaynaPort E/Z T	264	✓
04595 DaynaPort E/II-T	148	✓
04717 DaynaPort E/30	148	✓
04718 DaynaPort E/II	148	✓
04911 DaynaPort Minihub	238	✓
05188 DaynaPort SCSI/Link PB	294	✓
05189 DaynaPort SCSI/Link T PB	294	✓
05190 DaynaPort SCSI/Link 3 PB	338	✓
05191 DaynaSTAR Hub-12	682	✓
05279 DaynaPORT TRX-T	86	✓
05280 DaynaPORT TRX	86	✓
05723 DaynaPORT E/SE-T	148	✓
05724 DaynaPORT E/30-T	148	✓
05725 DaynaPORT E/LC-T	148	✓
05726 DaynaPORT E/LC-A	148	✓
05727 DaynaPORT E/si-T	148	✓
05728 DaynaPORT E/II-3	198	✓
05729 DaynaPORT E/LC-PP	244	✓
05730 DaynaPORT E/LC-TFP	244	✓
05731 DaynaPORT E/LC-AFP	244	✓
05732 DaynaPORT E/si-PP	244	✓
05733 DaynaPORT E/si-TFP	244	✓

Farallon

00676 Farallon EtherMac II-TN	158	✓
00677 Farallon EtherMac II-10T	158	✓
00678 Farallon EtherMac II-C	208	✓
00679 Farallon EtherMac LC-TN	158	✓
00680 Farallon EtherMac LC-TN + FPU	248	✓
00681 Farallon EtherMac LC-10T	158	✓
00682 Farallon EtherMac LC-10T+FPU	248	✓
00683 Farallon EtherMac LC-C	208	✓
00684 Farallon EtherMac LC-C+FPU	298	✓
00685 Farallon EtherMac 30i-TN	188	✓
00686 Farallon EtherMac 30i-TN+FPU	278	✓
00691 Farallon EtherMac 30i-10T	188	✓
00692 Farallon EtherMac 30i-10T+FPU	278	✓
00693 Farallon EtherMac 30i-C	238	✓
00695 Farallon EtherMac 30i-C+FPU	328	✓
00696 Farallon EtherMac SE-C	208	✓

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#04976 150MB Backup Tape\$24

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MF2 DD 800K 3.5"

#09095
#09096 MF2 HD 1.4M 3.5" (10 Pack) ...\$16



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Maxell CS-600HD	60MB	01578	18
Maxell CS-600XD	150MB	02469	22
Maxell MC-2050	40MB	04970	14
Maxell MC-2120	120MB	04972	22
Maxell MC-6000	60MB	04974	22
Maxell MC-6150	150MB	04976	24
4mm HS-4/60	1.3GB	00905	16

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Product	Capacity	Part #	\$/10
Maxell MF2DD	720KB	00904	\$7
Maxell MF2HD	1.44KB	04968	14
Maxell CS-600HD	60MB	04967	16
Maxell CS-600XD	150MB	04963	20
Maxell MC-2050	40MB	04971	12
Maxell MC-2120	120MB	04973	20
Maxell MC-6000	60MB	04975	20
Maxell MC-6150	150MB	04977	22
4mm HS-4/60	1.3GB	00906	14

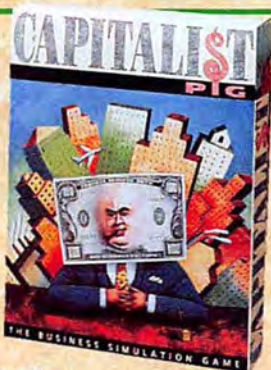
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Shanghai II, Dragon's Eye

Surrender to a 3000-year-old obsession. The most captivating strategy game of all time just got better.

Introducing Shanghai II: Dragon's Eye. Based, like the original Shanghai, on the ancient fascination of Mah-Jongg. And now with more of everything that made the original a computer game classic. There are several ways to play—solitaire, challenge and tournament—all so deceptively simple. The object: snap off matching pairs till you run out of tiles, run out of moves or run out of time. Simple? You bet, and absolutely addicting. And at the heart of Shanghai, you'll find Dragon's Eye. It's the ultimate challenge, even for the most cunning and seasoned Shanghai player. Shanghai II features 3 modes of play for 1 or 2 players, 8 beautifully detailed tile sets, over a dozen layouts based on the Chinese zodiac and a layout construction set for devising an endless variety of original formations.

Shanghai II, Dragon's Eye will beguile your days and nights. It will demand your concentration. It will become your obsession. Surrender. Activision #04763 ✓✓

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Flight Simulator 4.0

Take off and land at any of the major airports in the world. Flight Simulator boasts state-of-the-art, three-dimensional graphics and runs on both color and b&w Macintosh computers. Microsoft #04293 ✓✓

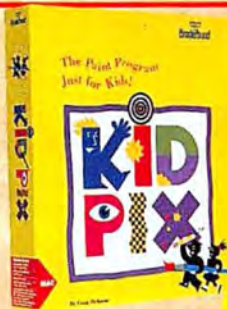
\$38



Hellcats Over the Pacific

Jump into the cockpit of an F6F Hellcat and rule the skies over Pacific islands in a half-million square mile world. This exciting WWII flight simulator provides fast and fluid graphics, 256 colors and high-quality sound. Graphic Simulations #01046 ✓✓

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Kid Pix

Kid Pix is an amazing paint program created just for kids. It combines special effects, art tools, picture stamps, sounds and more. Screen transformations turn the computer into a magical art studio. With Kid Pix, you don't just paint a masterpiece, you hear it too! Broderbund #03994 #05512 Kid Pix Companion\$24

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Battle Chess

The chessboard comes to life with Battle Chess, the first animated chess game. Battle Chess sets strategy in motion with animated, medieval characters battling for position on the board. Watch pieces move and battle over the squares in full VGA graphics with digitized sound effects. You choose between ten levels of difficulty. Colorful, dramatic graphics combined with the logic of chess dare the novice and expert alike.

Each piece has its own unique attack when confronted with a foe. Complete with an opening library of 30,000 moves, Battle Chess sets the standard for the ultimate in mind-challenging games.

You can play against the computer, or your friends, or let the computer play itself. Then different levels of difficulty can push your skills to the maximum. Full modem capability allows you to link players in different locations! Interplay #04134

#05537 Battle Chess CD-ROM\$42

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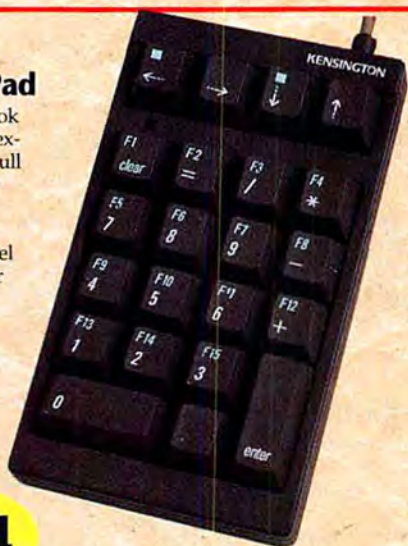
\$78

NoteBook Traveler Deluxe

Kensington's NoteBook Traveler carrying cases are specifically designed to fit your PowerBook. They protect your system against scratches, dust, sharp objects etc. Internal storage compartments hold power supply, external floppy drive, extra battery and external modem. Deluxe and compact versions available. Kensington #04690

Kensington NoteBook KeyPad

The Kensington NoteBook KeyPad gives you the flexibility and features of a full keyboard when you use your Macintosh PowerBook. Its compact, sleek design is perfect for travel with your PowerBook or any other ADB device. This module gives you function and arrow key control, as well as the standard mathematical and number keys found on an extended keyboard. Kensington #00638 ✓



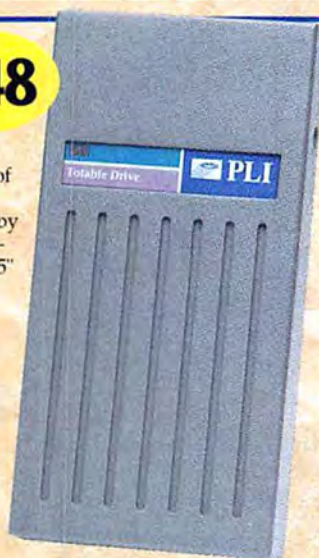
\$104

PLI 80MB 2.5" Totable Drive

\$648

Built for people on the move, PLI Totable drives offer 80 or 120MB of lightweight storage for the Macintosh PowerBook. Powered by AC outlet or an optional rechargeable battery pack, these rugged 2.5" drives support the PowerBook's power saving features. Totables are available in PowerBook gray and deliver whisper-quiet operation. Supported by PLI's renowned toll-FREE technical support, BBS and 30-day money back guarantee, you can't go wrong with the Totable Drive from PLI. PLI #05789

#05790 PLI 120MB Totable Drive \$798



\$158

External Full-Cycle Battery Charger for PowerBooks 140/170

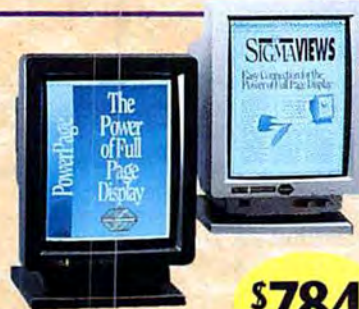
The Lind External Full-Cycle Charger not only charges the PowerBook 140/170 ni-cad battery but optimizes full performance and long life by giving you the option to discharge the battery completely before the charging cycle begins. Lind Electronic Design #05354



\$198

PowerModem 24/96 SR Internal

The PowerModem is not only an internal send/receive fax modem, but it's also a 2400bps Hayes-compatible data modem. The Fax is Group III compatible, sends at a full 9600bps and receives transmissions at 4800bps. PSI #04948 ✓



\$784

Power Portrait

This affordable, easy-to-install full-page display plugs directly into the SCSI port of your PowerBook, Classic, ClassicII SE or SE/30 computers. Its 15" full-page display features built in acceleration that lets you race through graphic displays. Choose between 72, 80 and 88dpi. Create a virtual two-page desktop to power through multi-page tasks. Sigma Designs #00571

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WordPerfect 2.1

The new WordPerfect 2.1 is System 7 Savvy! WordPerfect 2.1 also gives you full placement of graphics in your text and a color drawing program for modifying imported artwork without ever leaving the program.

WordPerfect Corporation #03972 ✓

#05013 WordPerfect Version

Upgrade ✓\$69



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Microsoft Excel 4.0

You've been hearing about it for years. Now take the next step and become an Excel user yourself. You'll enjoy all the ease of use and power that have made Microsoft Excel the leading spreadsheet for the Mac. Our Mac sales advisors are standing by.

Microsoft #00227 ✓

#04545 Microsoft Excel Competitive

Upgrade ✓\$98



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Microsoft Word 5.0

Microsoft Word provides depth of function and ease-of-use like no other word processor on the market today. The all new version 5.0 makes it even easier to apply the full power of Word to the chores you do every day.

Microsoft #04898 ✓

#00596 Microsoft Word Version

Upgrade ✓\$124



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ClarisWorks

Increase your office productivity. With ClarisWorks you can easily create professional-looking documents that combine colorful graphics with a variety of page layout options, including multiple columns and linked text frames. ClarisWorks features interactive environments which provide seamless integration of tools.

Claris #04466 ✓



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Claris FileMaker Pro

Take control of your computer data! FileMaker Pro, the extended file manager from Claris, puts powerful file management at your fingertips—and you don't have to learn a complex database programming language. Claris #03478 ✓

#05032 FileMaker Pro Competitive

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4th Dimension 3.0

4th Dimension is a high-end database designed for intermediate and power users. It provides depth of function and sophisticated data manipulation like nothing else on the market. Acius #02648 ✓



\$89

In Control

Get organized fast, get In Control. MacWEEK calls this to-do list manager, "undeniably the product of choice." With it you can track and manage the details of your daily activities: deadlines, priorities, status, staff assignments, anything you want. It's powerful multi-column outline lets you organize - and reorganize - lists instantly. Macworld says "If you make lists - and mercy on you if you don't - get this program." Attain #04949 ✓



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Accountant Inc. 3.0

Accountant, Inc. 3.0 is the fully integrated accounting system that's perfect for any type of business—retail, manufacturing, service or professional. It provides reports and performs analysis like no other software. Softsync/Bloc #00344 ✓



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Lotus 1-2-3

This, the latest version of the industry-standard spreadsheet, has been completely redesigned and optimized for Macintosh. Now Lotus 1-2-3 is even more powerful and easy to use than ever! You'll find new innovative spreadsheet capabilities, such as in-cell editing, true 3D worksheets, 1-2-3 Classic Menu and much more.

Lotus #00507 ✓

#00518 Lotus 1-2-3 Competitive

Upgrade ✓\$104

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Aldus IntelliDraw

New from Aldus, IntelliDraw is an exciting new type of drawing program that gives you an easy new way to visually experiment, refine and draw your ideas. Full text and drawing options provide the flexibility you need. Aldus #05481 ✓✓

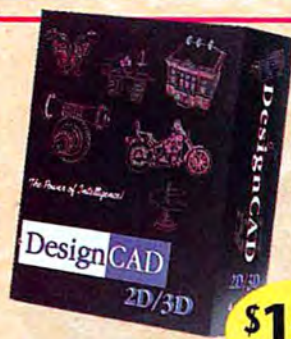
\$194

JAG

JAG is for anyone concerned with the look and visual impact of the images and animations they create. It's appropriate for use with all color paint packages, 24-bit photo retouching software, 2D animation and multimedia toolkits, and 3D modeling and rendering environments. JAG is perfectly suited to the needs of advertisers, animators, graphic designers, illustrators, multimedia producers and 3D enthusiasts alike. Raydream #04150 ✓✓

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Jaggies Are Gone



DesignCAD 2D/3D

DesignCAD is a revolutionary and professional computer-aided design and drafting package that provides complete 2D drafting and 3D modeling in one package. It's designed for engineering (mechanical, architectural & electrical), animation, desktop publishing and multimedia. DesignCAD, Inc. #04180 ✓✓

\$159

ADDmotion



ADDmotion II

This seamless multimedia extension for HyperCard brings 24-bit color paint animation and sound editing to HyperCard 2.1. ADDmotion II's ease of use and price make animation and multimedia available to Mac enthusiasts and HyperCard users. Exports QuickTime movies and includes HyperCard 2.1. Motion Works #00194 ✓✓

\$94

PrimeTime CD

PrimeTime CD is a collection of media and clips for use with PROMotion and ADDmotion II. The CD includes a media browser containing over 100 actors (in both color and black-and-white), background props and over 120 sound clips covering business, education and entertainment. Motion Works #01038 ✓✓

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PROMotion w/PrimeTime CD

With PROMotion's 24-bit color paint, animation and sound editor you can make QuickTime movies, storyboards and presentations quickly and easily—even if you can't draw. It's the perfect choice for business and artistic professionals. Includes extensive System 7 support, Sony Print to Video and PrimeTime CD-ROM. Motion Works #01039 ✓✓

\$248



Adobe Premiere 2.0

Produce attention-grabbing QuickTime video movies on your computer. Adobe Premiere is a simple yet powerful user interface for visually combining QuickTime video footage, audio recordings, animations, still images and graphics to create new QuickTime digital effects. Utilizes plug-in filters, including those for Photoshop. Adobe #05930 ✓

\$452

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MacroMind Director 3.1

Winner of the MacUser Eddy Award, Info World's Buyer's Assurance Seal and MacWeek's Target Award, Director offers one of the most complete authoring environments for creating interactive presentations that can be controlled by the user or viewer. New version 3.1 has full QuickTime and System 7 support! Macromedia #00839

\$798

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Expert Color Paint

The latest in professional, yet easy-to-use painting tools—at an incredible price. Expert Color Paint is a fully equipped desktop art studio that gives you true 32-bit color (that's 16.9 million colors and grayscale!), fully customized tools, virtual memory, multiple undo's and System 7 support. Want more? Included is a free clip art disk (a \$24.95 value). Softsync, Inc. #00954 ✓✓

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EtherMac cards provide an Ethernet interface for any Macintosh with an expansion slot. They're available with up to three media connections on board: 10Base-T, thicknet and thinnet. They come standard with a 16K RAM buffer and support both the Apple Ethernet installer and automatic software installation under System 7. Farallon #05931 ☎

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#11369 Novell Network for the Mac 20 User ☎✓\$598

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AppleShare Server 3.0

AppleShare Server 3.0 is the premiere file sharing software for the Mac. This new version meets the security, performance and multi-tasking requirements of larger workgroups and departments. Apple Computer Corp. #05475 ☎



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DaynaSTAR MiniHub

MiniHub is a non-intelligent hub for connecting network devices using twisted-pair (10Base-T) Ethernet wiring. With it you can communicate between various types of computers, printers and servers. Dayna Communications, Inc. #04911 ☎✓



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PowerMerge

PowerMerge solves the problem of keeping track of changes made to your files while working on your PowerBook. It simply and automatically synchronizes files between your PowerBook and your desktop Mac. It also features: notification if files have been changed on both computers since the last update, history log of updates, include/exclude by file. Leader Technologies #05690 ☎✓



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DaynaPORT SCSI/Link

DaynaPORT SCSI/Link is a small Ethernet connector box with a compact, portable design, ideal for Macintosh PowerBooks and portables. Both 10Base-T and thin-Ethernet cable systems are supported. Dayna Communications, Inc. #05188 ☎✓

#05189 DaynaPort SCSI/Link T PB ☎✓ ..\$294

#05190 DaynaPort SCSI/Link 3 PB ☎✓ ...\$338



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LanRover/L

Connect to your AppleTalk network over standard telephone lines! LanRover/L is a stand-alone communications server for Apple Computer's AppleTalk Remote Access which allows PowerBook users and users of desktop Macintoshes running AppleTalk Remote Access software to call and connect to an AppleTalk network. Shiva #05128 ☎✓

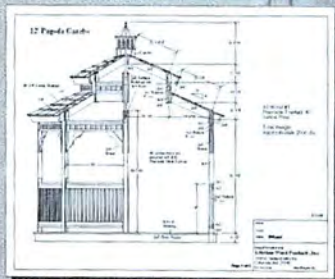
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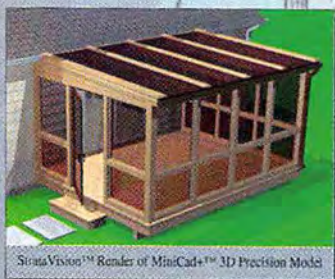
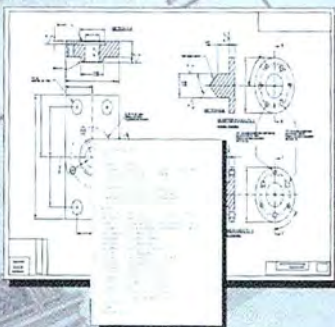
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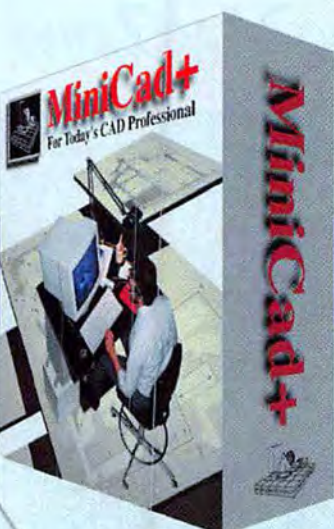
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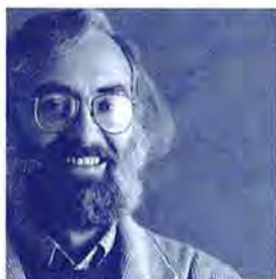
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The Evolutionary War



Lumbering software dinosaurs are about to experience the dark side of evolution: "Survival of the fittest" also means "extinction of the lamest."

Consider the labyrinthodont of the Devonian age. This distant relative of today's garden toad had three eyes, a skull armored like a tank, and teeth that must have been designed by a committee (the effect was apparently very much like having a mouthful of brain coral). Laby had features of both land and aquatic animals and was as big as a horse. Over the course of time, the labyrinthodont, like so many of nature's bolder experiments, became extinct — the same fate that many people feel should befall computer software designed along the same principles.

A distressingly large number of application programs are like the labyrinthodont: neither fish nor fowl, feature-laden, and unfocused. We have word processors with spreadsheet features, spreadsheet programs that do word processing, database-management programs that do both, and integrated "works" programs that do a little of everything — badly. Of course, there are advantages in having all those capabilities bundled into one product, but there are also disadvantages, and it is possible to keep the former and lose the latter.

A new species of software — small, focused applications that do one thing and do it very well — could eventually supplant the multipurpose programs of today. But this new species faces some tough environmental challenges.

The chief advantage of integrated applications is that they are integrated: You don't have to leave the application or the document to do something different. Their chief disadvantage is that you wind up settling for less when you use one of these amphibians. A word processor sold as a feature of a spreadsheet program is simply not going to be the most highly evolved word processor that money can buy.

What needs to happen, many would argue, is for integrated applications to fade into extinction and be supplanted by tools that let users integrate capabilities of their choice. Instead of buying integrated applications, users would buy the individual applications they needed. These applications, purchased separately from different vendors, would function together as smoothly as the components of ClarisWorks or Microsoft Works or WhateverWorks. Current applications won't work together that way. We will need new kinds of applications: smaller, more focused

applications that users will be able to integrate according to their own particular needs and working style.

Such applications will have to do what they do very well, because their vendors won't be able to sell them for the length of their features list. And they will have to be significantly less expensive than today's amphibians, because users will be buying more of them.

That's the model, and Bill Gates' vision of document-centered computing and the visions of Dave Winer at UserLand and the AppleScript people at Apple are all merely different strategies for implementing it. There is no argument about the goal: to give users control of the integration of small, focused software components.

Making it happen will require three things: support at the operating-system level for that kind of integration; tools that help users integrate the applications; and the small, focused applications themselves.

We've got the operating-system support in System 7, implemented as several levels of interapplication communication. This is solid and will only get better.

We've also got some integrating tools. UserLand Frontier broke the ground in this area by enabling users to script applications and tie several applications together via scripts. Although Frontier is too techie for most users, it and subsequent tools will evolve toward a more user-managed style of integration. AppleScript will play a big role in these developments. We will need tools ranging from serious scripting systems such as Frontier to completely invisible tools that users can drop into their System Folders and forget about. By this time next year, nearly all the pieces could well be in place.

What will still be missing from the equation are those small, focused applications themselves. Some niche products already fit the definition: word tools such as spelling checkers, for example. And there are examples of small, focused add-ons to existing products — Quark XTensions are a good example of how small programs can provide specific functions and be integrated into one work environment. But there does not currently exist such a thing as a small, focused word processor that can be invoked within another application. In the major software categories, featuritis is epidemic. We are still waiting for these applications.

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MICHAEL SWAINE

Whose Fault Is It?

Don't blame the application developers for the lack of these small, focused applications. Blame instead software retailers, computer magazines, and users like yourself.

The retailers? They're not set up to sell small, focused applications. Their problem is shelf space.

Small, focused applications mean more applications. Fine with me, you say, and so say I. More applications mean more competition, more choice for users, and more opportunities for software developers. But in the computer store, the battle for shelf space is already bloody. A significant increase in the number of applications will completely break the system. These new applications will not survive in this hostile environment; to make it, they will require new channels of distribution, even new models of distribution.

Well, maybe not exactly new. Selling software through mail order is not a new idea, and mail order gets around the shelf-space problem: no shelves. Several software catalog companies are doing well today. Mail order has other advantages over store sales, if the mail-order companies can identify the customers. And there's the rub. Stores can count on walk-in traffic, but mail-order firms are invisible unless they advertise or send catalogs to people whose addresses they get from lists. Are the lists good? And what about potential customers who don't show up on lists?


One area in which the problem of finding the customers is not so great is development software. By a convenient coincidence, the software-development market has in recent years seen the advent of small, focused development tools—in small numbers now but threatening to proliferate wildly. These are not the small, focused applications I've been discussing and that are yet to come to the consumer market; rather they are the *objects* of object-oriented programming. The promise of object-oriented programming is component software, plug-in tools, rapid development from off-the-shelf parts. The question is, What shelf? Where do I as a software developer get these objects, or if I've got some objects I'd like to sell, where do I find customers for them?

One company making good on the promise is NeXT, which has arguably the best object-oriented development

environment currently available on any computer and which now distributes a catalog of objects to its developer customers. The catalog includes more than 100 objects, from dozens of companies, that do such things as automatically feed market data into spreadsheet programs. This approach could well represent a significant change in how software is distributed in that particular market.

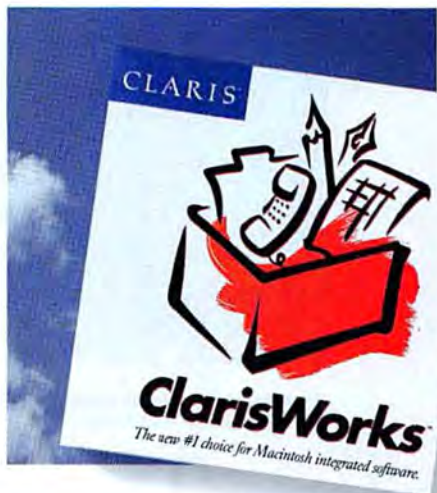
Catalogs and advertising-based mail order will certainly figure somehow into the future of small, focused applications. Other, more-innovative distribution plans may develop too. Pundit Esther Dyson regularly brings industry leaders together at her conferences to brainstorm about the distribution problem. And one developer and entrepreneur I talked with recently is approaching the distribution problem by redefining it: His company helps customers find the software they need. He currently works with large corporate customers who can buy lots of software, but he hints that it would not be impossible to set up a system wherein individual customers could search for exactly the software they need. A customer-driven market? Sounds subversive, doesn't it?

But why blame magazines? Well, the problem is that we writers and editors and lab technicians are all set up to count, check off, and compare products on the basis of their features. There's a lot more to reviewing software than simply tallying features and listing them in a huge table. Nevertheless, such lists are a common part of the current review process, and small, focused applications can't help but look pretty lame when we evaluate them this way. The approaches we currently use in evaluating applications or even in covering them as news are simply not appropriate to this new kind of small, focused application.

Which leads to your part in all this. Currently, you ask the press for feature tables and you ask software vendors to add features to their products. But just as we need to be ready to review small, focused applications differently, you need to be ready to judge them fairly. And be ready to buy and use them. Small, focused applications will succeed only if users and the press recognize that they are not just failed labyrinthodonts. In all the background noise of "revolutionary" developments in the computer industry, we must be prepared to recognize a genuine case of evolution when it appears. 

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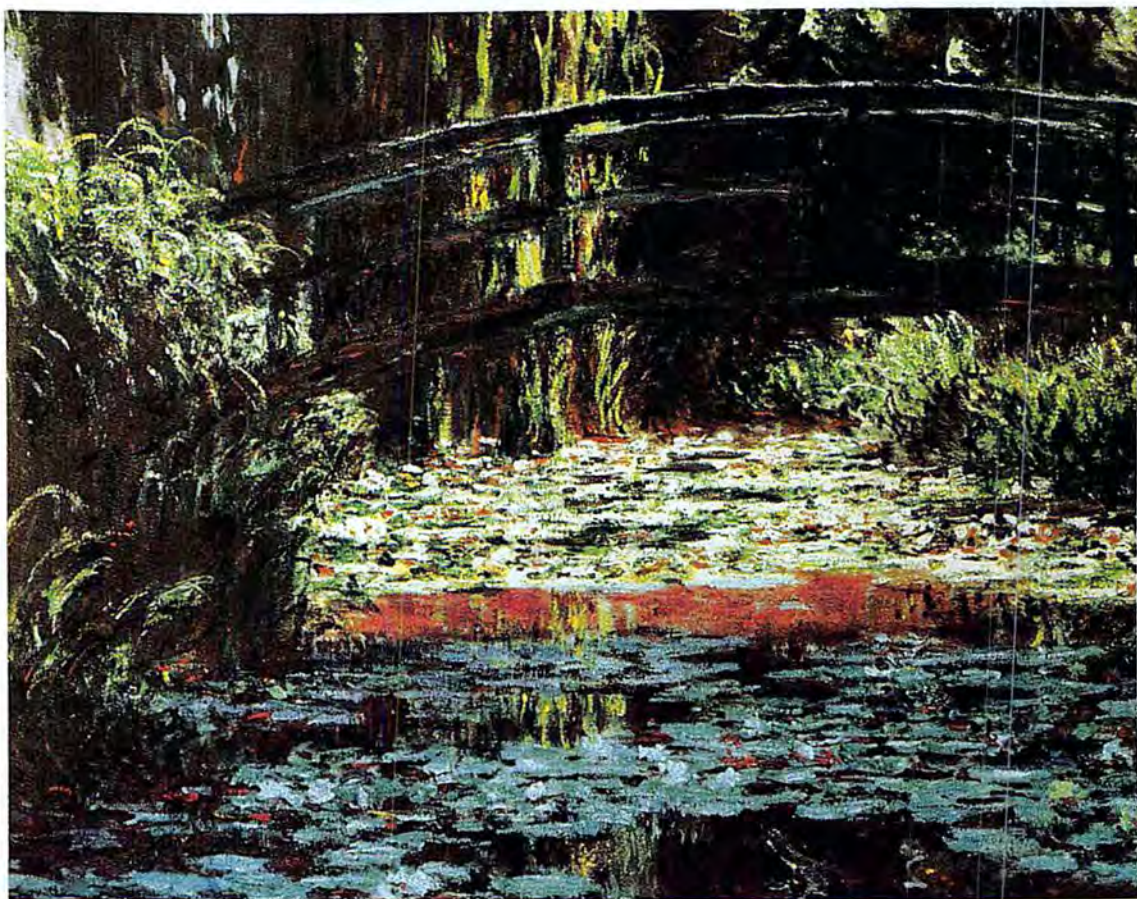
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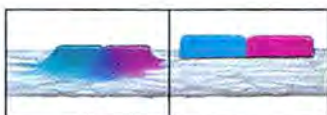
Claude Monet. *Japanese Bridge at Giverny*, 1900.

The image is priceless.

The clear superiority of solid ink technology is becoming legend.

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Perhaps more surprising is that the image above is even better than this ad can show you,



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color solid ink Adobe® PostScript® Level 2 printer on the market. It's the world's lowest priced color solid ink printer.

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Fortunately, the printer isn't.

tude when creating documents, presentations, publications and color comps.

And because of its solid ink technology, JOLT prints more readable text,

even at extremely small point sizes.

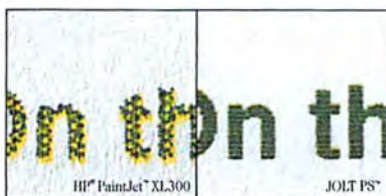
Finally, JOLT is also more

economical since it doesn't require any kind of special paper.

Imagine.

Now you can produce 16.7 million different hues with the precision and vibrancy of

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Unlike liquid ink printers, JOLT creates crisp characters in solid, bold color (enlarged 250%).

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The graphing and charting capabilities of 1-2-3® make it the best Macintosh® spreadsheet for presenting data, because, unlike Microsoft® Excel, graphs and charts in 1-2-3 are in the same files as your worksheets. So you can make one-click graph type changes, pull objects across window boundaries to the worksheet, dynamically link chart titles to cell contents, and shrink charts to small icons on your worksheet.

Unified Work Environment

Our unique Unified Work Environment lets you manipulate data, text and graphics all in the same file with *one* set of menus and only *one* set of tools. Excel requires you to go into each worksheet file separately to manipulate each element.

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Only with the true 3D capabilities of 1-2-3 can you easily consolidate multiple spreadsheets into *one* file without having to link the files. 3D allows all spreadsheet functions to be performed *through* multiple worksheets just as they are performed down rows and across columns.

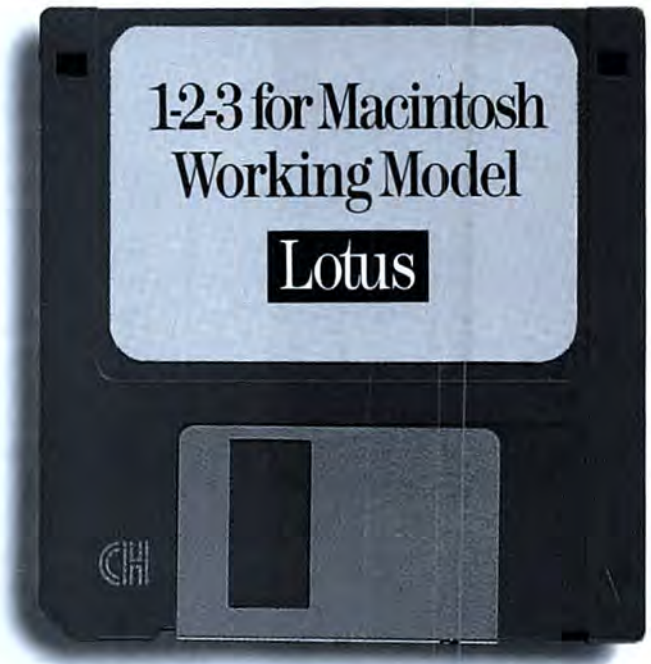
Database functionality

1-2-3 for Macintosh provides powerful internal database functionality, as well as superior and innovative built-in external data access to all major databases via DataLens®.

Classic menu

1-2-3 is the clear choice for DOS spreadsheet users moving to Macintosh because only 1-2-3 offers the traditional Classic® menu, which makes it easier for you to access familiar 1-2-3 commands and run macros already written for 1-2-3.

This side
is for people
who don't.



1-2-3 is easier to use than Excel. Prove it to yourself.

1-2-3 is not only the world's easiest-to-use Macintosh spreadsheet, it also provides superior technology and advanced spreadsheet functionality. Prove it to yourself. Buy a copy from your local dealer. Or call **1-800-TRADEUP, ext. 7044*** for a free working model. Excel users be sure to ask about our special upgrade price:**

Lotus 1-2-3 for Macintosh

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NEW ON THE MENU

Elephants and mice: In September, we told you about little Quorum Software Systems, which had filed a preemptive lawsuit against Apple's intellectual-property gestapo to prevent Apple from suing it. Well, apparently the ruse worked. Apple has settled with Quorum and backed off from any threats against the smaller company. If only Microsoft had been so clever . . .

By Russell Ito

News fit to print . . . from Compaq and QMS. Compaq's first network printers, the **Pagemarq 15** (\$3,999) and the **Pagemarq 20** (\$5,499), are 15- and 20-ppm models, respectively. They each use an AMD 29000 RISC chip, either 16 megahertz (the 15) or 20 megahertz with an additional 128K instruction cache (the 20). The printers are Adobe PostScript Level 2 units, with 4 megabytes of RAM expandable to 18 megabytes (the 15) or 20 megabytes (the 20). PCL 5 and automatic emulation switching are also supported. Resolution choices include 800 x 400 pixels, 400 x 400 pixels, or 300 x 300 pixels with Compaq's Print Enhancement Technology. The Fuji-Xerox engines in the Pagemarqs can handle paper as large as 11 x 17 inches, and the 20 can hold 1,500 sheets (the 15 holds 750). LocalTalk, parallel, and serial ports are standard, with Ethernet as an option. Other options include an internal fax modem. 800-345-1518 or 713-370-0670. ➤ QMS has two new printer models: the **ColorScript 210** (\$4,995) and the **ColorScript 230** (\$7,995). These



300-dpi, thermal-wax-transfer printers each use a 25-megahertz Intel 80960CA RISC chip and are QMS' first color printers to use the company's Crown architecture. The 230, which can print full-bleed prints as large as 11 x 17 inches, comes with 13 megabytes of RAM. The 210, which can print on pages as large as legal size, comes with 8 megabytes of RAM. Each printer is upgradable to 32 megabytes. The ColorScripts have QMS' emulations of Adobe PostScript Levels 1 and 2 plus HP GL, with automatic emulation switching. LocalTalk, parallel, and serial ports are standard, with optional Ethernet. Each printer has 65 fonts, including some display typefaces. QMS has also modified the Mitsubishi engine in the model 210 so it can print on plain paper. 800-523-2696 or 205-639-4400.

Up to Date . . .

Andrew Tobias' Managing Your Money 5.0 is the 1993 edition of Meca Software's personal-finance package. Enhancements include password protection, improved saving features, and Quicken 3.0 import. 800-288-6322 or 203-256-5000. \$79.95. ➤ **Sketch! 1.5** is a significant upgrade to Alias Research's 3-D-illustration package. Expect faster screen redraws and rendering, direct import of FreeHand files, and the ability to cut holes in objects. 800-447-2542 or 416-362-9181. \$995. ➤ **WealthBuilder 2.0** is a major upgrade to Reality Technologies' investment-planning package. New features include on-line investing support and more charts. 215-387-6055. \$169.95. ☞

Cardless Color Tricks for Quadras

Resolution and bit-depth switching on the fly, 24-bit color, and — look, ma, no card! Radius is now shipping its 20-inch PCD/20 PrecisionColor display in a configuration called the PCD/20S, which includes advanced imaging software optimized for a Quadra's built-in video.

The PrecisionColor software, available separately as well as in the PCD/20S bundle, consists of three applications — Dynamic Desktop, Dynamic Color, and ImpressIt.

Dynamic Desktop, which is specifically for Quadras, lets Quadra users with PCD/20S displays switch among various resolutions, including 1,152 x 870 pixels in 8-bit color, 832 x 624 pixels in 24-bit color (for still images), and 640 x 480 pixels in 24-bit color (for video or animated presentations), on the fly, using internal video.

Dynamic Color lets PCD/20S users select color temperatures from 2,500 to 15,000 degrees Kelvin to simulate a variety of lighting conditions — a helpful feature if you're designing materials to be used specifically in daylight or fluorescent light.

ImpressIt is Radius' JPEG still-image-compression software for fast compression, storage, and decompression of 8-bit-gray-scale and of 8-, 16-, or 24-bit-color images — it'll come in handy if you get carried away with your new 24-bit-color capabilities.

Radius, Inc., 1710 Fortune Drive, San Jose, CA 95131; 408-434-0770. \$3,299.



Radius' PCD/20S bundle gives you a 20-inch display bundled with a \$299-value software package that lets you drive the monitor at 24-bit color, using the Quadra's internal video.

Action-Packed Presentations

Maybe you've thought about presenting something more lively than slide after slide of bulleted lists, but multimedia-presentation tools seem too daunting. Take heart: Macromedia's Action! 1.0 for the Macintosh lets you add motion, sound, and interactivity to your presentations without performing complex frame manipulation.

Instead of frames, Action! uses *scenes* as its primary elements. A scene includes text and objects you draw or import. You describe object actions with the Action tool, add digitized sound with the Sound tool, and synchronize object motions and special effects on the Timeline. You can turn objects into buttons that you click on to go to other scenes, or you can use a

VCR-like control panel to navigate within and among scenes.

In addition to tools, Action! has lots of scene-building blocks. The ClipMedia library provides premade graphics, sounds, and animations, and you also get ten families of scene templates in different styles — just substitute your own text or objects and watch the action.

If you import slides created in a package such as Persuasion or PowerPoint as a series of PICT files, Action! can automatically separate slide elements into objects to be animated. You can also import Excel charts, AIFF and SoundEdit sounds, PICS animations, and QuickTime movies. But don't try importing from the Windows version — Action! presentations don't run across platforms.

Macromedia, Inc., 600 Townsend, Suite 310W, San Francisco, CA 94103; 415-442-0200. \$495.



Watch out for those speeding bullets: Macromedia's Action! provides VCR-like controls, a simple Timeline, and lots of templates to make it easy for you to create animated multimedia presentations.

Now Up-to-Date Update

Like "modern" art movements, a program with *up-to-date* in its name had better not become old news. Living up to this implicit promise, Now Software is releasing version 2.0 of Now Up-to-Date (NUD), its personal and workgroup appointment scheduler, less than a year after the debut of version 1.0.

In the area of workgroup schedule sharing, version 2.0 provides improvements for mobile users and large organizations. For users who sometimes work disconnected from the NUD server, version 2.0 adds the ability to create and modify public events, not just private events, while you're off-line. Other improvements for mobile users include multiple private-event categories and calendar compatibility with the Sharp Wizard. Large organizations will benefit from the ability to connect simultaneously to multiple calendar servers and to view all events from one personal-calendar file.

In the personal-use area, NUD 2.0 has added integrated To Do lists, the AlarmsClock menu bar from the Now Utilities collection, WYSIWYG appointment-book printing, more text per event description, and — for obsessively up-to-date types — the ability to schedule events in one-minute increments.

Now Software, Inc., 319 S.W. Washington Street, 11th Floor, Portland, OR 97204; 503-274-2800.

Apple's Kinder, Gentler Desktop

Yes, there *are* Mac users for whom the Finder can be confusing — or downright dangerous. Parents, teachers, and others who share Macs with young or novice users will appreciate the safeguards built in to At Ease, Apple's new System 7 extension for protecting the Finder from those who don't understand its power.

At Ease hides the Finder by covering it with a simple desktop that includes only a Documents folder and an Applications folder. Documents and applications are represented by large buttons, which users click on just once to open or launch them — and which can't be moved, renamed, or deleted.

To escape from At Ease and go to the Finder, users must know the password specified by the computer's primary user. The primary user also determines which

applications appear in the At Ease Applications folder and can require At Ease users to save documents only to a floppy disk or to a remote file server.

At Ease comes with Mouse Practice, an application that teaches novices how to use a mouse. In the U.S., it also includes a year of toll-free telephone support for primary users who aren't completely at ease with At Ease.

Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014; 800-776-2333 or 408-996-1010. \$59.



Apple's new At Ease application hides the Finder with a simpler desktop that prevents users from moving, renaming, and deleting files — a boon for parents and teachers.

Easy Image Editing from Caere

Now that low-cost color scanners and printers have removed some barriers to everyday use of computerized color images, it's time to knock down one more barrier: the steep learning curve of most image-editing applications. Caere's new Image Assistant program aims to simplify the entire process of capturing and using 24-bit-color images while still providing high-end image-editing features.

The image-capture part of Image Assistant provides the one-step scanning you'd expect from the maker of OmniPage Direct. With an Apple,

Epson, HP ScanJet, Microtek, Ricoh, or other TWAIN-compatible scanner, it can automatically detect images; determine if they're line art, gray scale, or color; straighten and crop them; adjust brightness and contrast; set the appropriate resolution; and filter out background noise.

For working with images, Image Assistant provides two modes. In Assist mode, you get dialog boxes that show a range of results for adjusting a selected piece of your image. In Standard mode, you get a set of image-creation and -editing tools.

Output controls range from the ultrahelpful (settings optimized for particular printers, demonstrative dialog boxes for fine-tuning) to the advanced (automatic or user-specified angles and ruling for four-color separations). And you can export to Windows; Caere is shipping a fully compatible Windows version of Image Assistant concurrently with the Mac version.

Caere Corp., 100 Cooper Court, Los Gatos, CA 95030; 408-395-7000. \$495.



Caere's Image Assistant makes image editing easy; it previews the effects of brightness changes, contrast changes, and other adjustments on a selected portion of an image.

NewsLine

Reports and Analysis

Apple Loses Appeal

SAN FRANCISCO, CA — Apple Computer may have created a time machine. In early August, U.S. District Judge Vaughn Walker rejected Apple's request to reconsider his April ruling that essentially gutted Apple's "look and feel" suit against Microsoft and HP. In the April decision, Walker ruled that most of the elements in Apple's suit were covered under Apple's prior agreement with Microsoft and HP. By rejecting Apple's request, Walker returned the case to its mid-April status.

Recession in the Valley

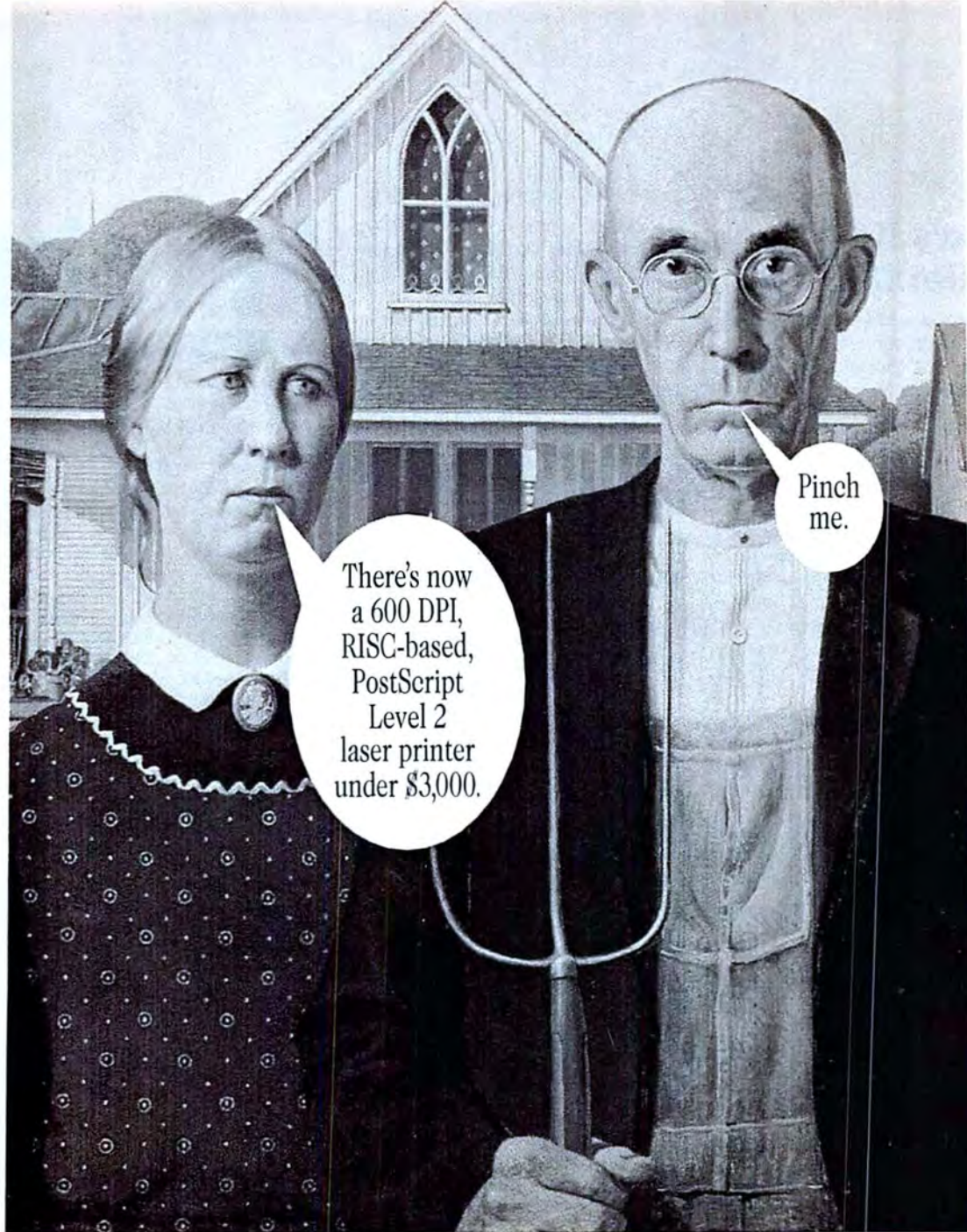
SILICON VALLEY, CA — The recession continues to rumble through Silicon Valley. Symantec, after suffering a fiscal quarter that failed to match expectations, launched a restructuring that included laying off 10 percent of its work force — approximately 100 people. Meanwhile, Reference Software, maker of Grammatik Mac, has seen the grammar-checking market turn sour and has laid off 50 people, or 40 percent of its employees. And Apple may not be far behind: With aggressive pricing reducing its profit margin per unit, Apple is rumored to be considering another restructuring that may include 700 to 800 layoffs.

Apple Bans CFCs

CUPERTINO, CA — After junking its signature white box to be environmentally correct, Apple Computer has announced that it has eliminated the use of chlorofluorocarbons, or CFCs, in its worldwide manufacturing facilities a year ahead of schedule. Electronics manufacturers have used CFCs to clean circuit boards, but many manufacturers have now switched to water-based systems.

Claris Junks SmartForm

SANTA CLARA, CA — The much-heralded forms market has turned out to be a bust. Claris has decided to abandon its forms package, SmartForm Designer, following Adobe Systems, which dropped its TrueForm package last year. For those who still need forms, Claris is offering a special pricing deal on FileMaker Pro and Shana is offering the option of switching to its forms package, InForm Designer.



The new LZR 965 from Dataproducts gives you everything you want from a laser printer at a price that may startle you. This true 600 x 600 dpi, Adobe® PostScript® Level 2 laser printer gives you greatly enhanced gray scale capabilities for optimum detail in graphics and photographic images. Even 4-point type is made clean and easy to read. And since the RISC-based processor can provide fast, flawless delivery of higher resolution images your output can look like a masterpiece every time. In no time.

	List Price	PPM	RISC Processor	Postscript Level 2	Resolution 600x600	Warranty
LZR 965	\$2,995	9	Yes	Yes	Yes	2 years
IBM 4029-10A	\$3,995	10	No	No	Yes	1 year
Apple LaserWriter IIg	\$4,999	8	No	Yes	No	1 year
QMS PS815MR	\$5,495	8	No	No	Yes	1 year

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Combine Mac and PC system compatibility and superior paper handling with a very small footprint and you'll begin to experience the whole picture.

You don't need a trained eye to see that the extraordinary image quality and technologically advanced features will make this printer a classic for years to come. Add the fact that it's easy to use and inexpensive to own and you'll know why the LZR 965 has everybody talking. For finer details, contact the Dataproducts dealer nearest you or call 800-334-3174.

 Dataproducts.

The high performance printer people.™



CIRCLE 116 ON READER SERVICE CARD.

Coming Home: The Performa Family

Forget about a chicken in every pot. Apple wants to put a Macintosh in every home, or at least in the 7 million or so that can afford one.

Politicians want to stand for family values. Apple Computer, with its new Performa series of consumer Macs, wants to stand for value for families. In each case, the public gets to decide the issue, whether it's voting with ballots or with dollars.

You can vote for one of three candidates fielded by Apple. Available now are the Performa 200, which is physically identical to a Mac Classic II, and the Performa 400, which is basically an LC II. Slated for arrival in late October is the Performa 600, an entirely new Mac

that is available with an optional built-in CD-ROM drive. Apple is planning to let retailers sell these machines in bundles that will include Apple printers (the StyleWriter or the Personal LaserWriter LS) and new low-cost monitors. For details on all the Performa hardware, see the "Inside the Performas" sidebar.

Despite their goofy name (face it, *Performa* sounds more like a new minivan than a computer, but that's probably the idea), these are real Macs. What can an American family expect if it brings home a Performa? In terms of hardware, there's not a lot new on the lower-level machines. As already mentioned, the Performa 200 is an identical twin of the Classic II. With apologies to Patty Duke, the Performa 400 is an identical cousin of the LC II. And the Performa 600, which looks like no Mac you've ever seen before, has slightly superior performance to that of a IIci. The biggest innovations of the 600 are a slightly faster 68030 chip (32 megahertz versus the IIci's 25 megahertz) and its optional built-in CD-ROM drive.

Apple's Consumer Crusade

For Apple, the stakes are considerable. As part of its ongoing quest for more market share, the company is actively courting an estimated 7 million families — the ones who can afford to buy a home computer but so far have stubbornly resisted the temptation.

What can tempt them? Apple's betting on competitive pricing (the Performas will have no official suggested retail price, but they are expected to sell for between \$1,250 and \$2,500 — about the same as or less than their regular Mac cousins). That might not sound like the deal of the century, but the Performas will also have bundled software (every Performa will come with, at minimum, one integrated package and, more commonly, a variety of software aimed at home users). The exact contents of each bundle will be decided by the retailers, though, so be sure to shop around to find the most attractively priced configuration that best fits your needs. In addition, Apple has tweaked the familiar Mac interface in an effort to make it slightly friendlier and has also added a new level of customer support.

Homework and Home Work

Apple expects that as home computers, Performas will be used primarily for work and education. The work part of the equation includes home-based businesses as well as the increasing number of people who want to bring their office work home with them. The educational component primarily means families who want to give their kids an educational leg up. Years ago that meant buying an encyclopedia set — today it means getting a \$2,500 color computer with a built-in CD-ROM drive.

Where America Shops

To reach those 7 million home-computerless families, Apple has decided to take the Performas into the retail outlets where (relatively affluent) America shops. That means business-supply stores such as Office Club; consumer-electronics stores such as Silo and Circuit City; and, of course, Sears, which was the site



PHOTOGRAPHY: STEVEN UNDERWOOD

NEW ON THE MENU MACINTOSH PERFORMA

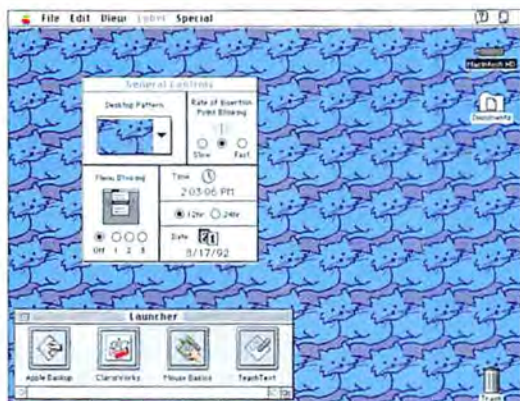


Figure 1: A quintet of System 7 enhancements — dubbed the P series — makes piloting a Performa a snap for first-time Mac users. Launcher is a control panel that lets you launch all your applications with a single click. A Documents folder on the desktop provides a default destination for all saved files.

of a successful pilot program.

When first-time computer buyers walk into Sears or Circuit City, the Macs they see sitting on the shelf next to the VCRs and portable stereos will have some subtle differences from previous Macs; these differences are meant to make them more instantly accessible to people who've never used a computer before.

Although the Mac has always enjoyed the reputation of an easy-to-use computer, Apple recognizes that — thanks to the similar and more pervasive Windows interface — it can no longer rest on its laurels. So the company has made some changes — changes designed to turn the Mac into an even-easier-to-use computer.

First, there's Launcher, which has a few easy-to-launch icons that invoke user-specified applications. However,

this launcher shouldn't be confused with the more elaborate At Ease Finder shell that Apple recently announced (see New on the Menu in this issue). Thanks to Launcher, first-time users can take a Performa out of the box; plug it in; turn it on; and then launch, say, an integrated application with a single click of the mouse button. Note: That's a *single* click. Apple doesn't even want to make these users master the double-click before they can get started.

Other changes are designed to eliminate common stumbling blocks for new users. For instance, the Finder now defaults to a mode in which when one application is selected, windows for all other applications (including the Finder) are automatically hidden. This should reduce the common confusion for new users

Inside the Performas

In keeping with Apple's intent to keep its consumer line as uncomplicated as possible, both the Performa 200 and the 400 come in only one configuration: with an 80-megabyte hard drive, 4 megabytes of RAM, and a standard keyboard.




The introduction of the Performa series is not limited to these retreads, however. The Performa 600 (and its CD-ROM-equipped sibling, the Performa 600 CD) is new from the ground up.

Also new are two low-cost 14-inch color monitors, the Performa Display and the Performa Display Plus, carrying estimated street price tags of \$350 and \$450, respectively. Each monitor uses an inexpensive shadow-mask technology that can't match the quality of the crisp Trinitron display in the familiar 13-inch AppleColor High-Resolution RGB Monitor. The Display Plus has a lower dot pitch (a smaller distance between phosphor dots) than does the Display, which gives it a crisper image; the Display Plus also conforms to the stringent European SWEDAC MPR-2 standards for

who can see their word-processing document on-screen but are actually in the Finder.

And here's another change Apple should have made years ago: A special Documents folder is automatically created and placed on the desktop as the

Table 1: Pros and Cons of Macintosh Performas

	 Pros	 Cons	 Ideal Users
Performa 200	<ul style="list-style-type: none"> Twice as fast as a Classic. Least expensive Performa. Compact and transportable. 	<ul style="list-style-type: none"> Slow 16-bit data path. Small monochrome display. No expansion slot. No FPU for math-intensive operations. 	<ul style="list-style-type: none"> When bundled with an inexpensive printer, this monochrome Mac is ideal for newcomers to word processors, spreadsheet programs, and other home-business and family-finance software.
Performa 400	<ul style="list-style-type: none"> Twice as fast as a Classic. Lowest-cost color Mac. Optional Apple IIe card available. 	<ul style="list-style-type: none"> Slow 16-bit data path. Limited to 8-bit color at 640 x 480 pixels. No FPU for math-intensive operations. 	<ul style="list-style-type: none"> Low-cost color makes the Performa 400 the perfect entry-level family Mac for people who want to combine home-office, children's education, and family-entertainment uses.
Performa 600	<ul style="list-style-type: none"> Three times as fast as a Classic. Three NuBus slots. Video upgradable to 16-bit color at 640 x 480 pixels. 	<ul style="list-style-type: none"> No RAM cache. FPU costs extra. 	<ul style="list-style-type: none"> With speed comparable to that of the IIsi, this 32-megahertz 68030 workhorse is hearty enough for those who need the power required for simple DTP.
Performa 600 CD	<ul style="list-style-type: none"> Three times as fast as a Classic. Three NuBus slots. 16-bit color at 640 x 480 pixels. High-performance CD-ROM drive. Multisession Photo CD-compatible. 	<ul style="list-style-type: none"> No RAM cache. FPU costs extra. Most expensive Performa. Dual-speed mode of CD-ROM drive has limited value. 	<ul style="list-style-type: none"> The addition of a high-performance CD-ROM drive, extra RAM, and 16-bit color makes this unit ideal for those who want an affordable multimedia-capable Mac.

magnetic-field emissions.

The Performa 600 comes equipped with 4 megabytes of RAM, a 160-megabyte hard drive, and a 32-megahertz 68030 microprocessor. Its 512K of VRAM (video RAM) provides 8-bit color or gray scale on a standard 640-x-480-pixel monitor. With the addition of a second 512K VRAM SIMM, the Performa 600 can support 16-bit video. If you want 24-bit video, you can drop a 24-bit-video card into one of the Performa 600's three NuBus slots.

The Performa 600 CD's most obvious difference from the other Performas is its AppleCD 300i CD-ROM drive — Apple's first internal CD-ROM drive and the latest move in Apple's long-standing effort to popularize CD-ROM technology. The drive's Sony mechanism boasts a 295-millisecond access time, dual-speed operation for twice the throughput on most operations, full support for Kodak's Photo CD standard, and even a dust-protecting door that's labeled to let you know a CD-ROM caddy has been inserted. Despite the

expected performance improvement of dual-speed operation, however, our testing on a similarly equipped drive, the NEC 74M, showed that only such read-intensive operations as QuickTime playback enjoy significant improvement.

In addition to the AppleCD 300i, the Performa 600 CD comes with 5 megabytes of RAM (4 megabytes on the motherboard and four 256K SIMMs) and 1 megabyte of VRAM, providing the 16-bit video necessary for quality QuickTime playback. As with the Performa 600, a 160-megabyte hard drive is your only choice. Both the Performa 600 and 600 CD include an Apple Extended Keyboard.

True to their advertising, all three Performas are powerful enough to serve effectively in the home or home office, but none — not even the top-of-the-line Performa 600 — has the power to endure the rigors of such demanding work as high-level desktop publishing, professional image retouching, or complex financial modeling.

— Rik Myslewski

default container for new documents, which means no more word-processing files accidentally accumulating in a user's word-processing-application folder.

Apple is also bundling a pair of simple backup programs, called Apple Backup/Apple Restore, that can back up data to floppy disks. Although they're basic, the duo should prove easy enough that beginners will be encouraged to make backups on their own.

Some changes are more cosmetic than substantive. The Performa 400 and 600 automatically boot in color. The number of Desktop Patterns has been increased and includes more colorful patterns, although Thought I Could's Wallpaper utility is still better.

Bundles of Joy

As mentioned, every Performa will be bundled with, at minimum, one integrated application. Apple says the choice of application will be left up to the reseller, but the company is prepared to put Beagle Bros' BeagleWorks, Claris' ClarisWorks, or Symantec's GreatWorks on the machines. Notably absent for now is the forthcoming version of Microsoft Works.

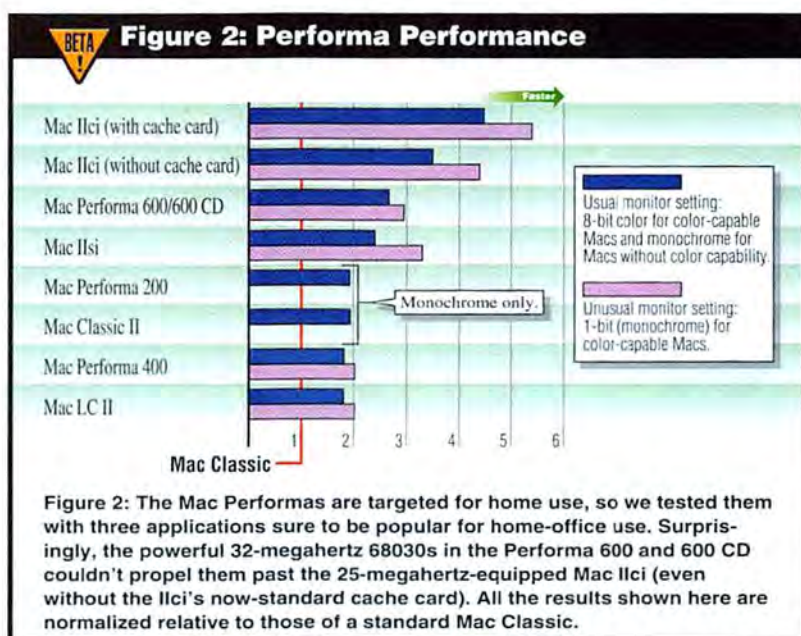
Apple is also touting the Performa 600 CD as being the ideal machine for Kodak's Photo CD technology, which lets

photos. Apple will be bundling a sample Photo CD disc with every Performa 600 CD.

Apple's new CD-ROM drive is "multi-session capable," meaning that it can read discs that have had photographs stored on them over the course of two or more trips to the developer. Apple has also written special software that lets you browse through photos on-disc and see them on your monitor. You can even run a QuickTime slide show of your photos. For more-sophisticated users, these images can be manipulated and transformed by any graphics- or video-editing software that can read files in the Photo CD format.

Other software programs that may be included in Performa bundles range from educational packages to games. The CD-ROM drive in the Performa 600 CD is going to make it possible to offer some truly exciting educational bundles. Apple's idea of good educational software includes innovative titles such as The Voyager Company's Mozart: String Quartet in C Major and Discis Knowledge Research's interactive Cinderella story. But because not all the Performas come with CD-ROM drives, expect to see more-traditional educational titles such as Brøderbund's Where in the World Is Carmen Sandiego? and Great Wave Software's NumberMaze and WordMaze.

All the software in the world, though,



MACINTOSH PERFORMA

will be useless if customers can't keep their systems running. In keeping with its recent efforts to provide more-responsive service and support, Apple will be providing free phone support for Performa owners for the duration of the computers' one-year warranty. In addition, Apple has announced a new program, Apple Service, in which the company will send a technician on-site — making a house call, as it were — to diagnose and, if possible, fix problems. Because the Performas will be sold through retail outlets rather than through

the computer dealers that have traditionally carried Macs, the added support will be welcome.

Will They Sell?

Will America's consumers take the Performas to heart — or at least take them home? That probably depends more on Apple's ability to sell the machines effectively in partnership with the Sears, the Office Clubs, and the Silos. The Performa 200 should be popular with people on tight budgets, such as students. The 400 may fit nicely into the

niche already carved out by the LC II as the premier educational Mac and entry-level color machine. The Performa 600 CD, with its built-in CD-ROM, has the potential to dazzle buyers — thanks to the explosion of high-quality CD-ROM multimedia titles and Kodak's Photo CD. Apple has already proven its ability to take a market segment by storm, with the success of its notebook computers. Do the Performas have what it takes?

Only those 7 million households know for sure.

— James Bradbury 

Table 2: Features of the Macintosh Performas

● = yes ○ = no	Performa 200	Performa 400	Performa 600	Performa 600 CD
Estimated street price*	\$1,250	\$1,450	\$2,000	\$2,500
CPU				
Microprocessor	68030	68030	68030	68030
Floating-point unit	none	none	optional†	optional†
Data bus	16 bits	16 bits	32 bits	32 bits
Clock speed	16 MHz	16 MHz	32 MHz	32 MHz
RAM				
Standard	4 MB	4 MB	4 MB	5 MB
SIMM slots	2	2	4	4
Maximum RAM	10 MB	10 MB	68 MB	68 MB
Video				
Video	9-inch internal CRT	internal VRAM controller	internal VRAM controller	internal VRAM controller
Standard on-board VRAM	NA	512K	512K	1 MB
Maximum on-board VRAM	NA	512K	1 MB	1 MB
Standard on-board bit depth	1 bit (512 x 342 pixels)	8 bits (640 x 480 pixels)	8 bits (640 x 480 pixels)	16 bits (640 x 480 pixels)
Maximum on-board bit depth	1 bit (512 x 342 pixels)	8 bits (640 x 480 pixels)	16 bits (640 x 480 pixels)	16 bits (640 x 480 pixels)
Storage				
Hard-disk capacity	80 MB	80 MB	160 MB	160 MB
Internal-storage expansion bay	none	none	5.25-inch half-height	none
Floppy-disk capacity	1.44 MB	1.44 MB	1.44 MB	1.44 MB
CD-ROM-drive access time	NA	NA	NA	295 ms
CD-ROM throughput	NA	NA	NA	150 – 300K per second
Ports				
ADB	single	single	dual	dual
Audio in	mono	mono	mono	mono
Audio out	mono	mono	mono‡	mono‡
Serial (modem)	●	●	●	●
LocalTalk	●	●	●	●
EtherTalk	○	○	○	○
Video	○	●	●	●
SCSI	●	●	●	●
External floppy drive	●	○	○	○
Slots				
Processor-direct	○	●	○	○
Accelerator	○	○	●	●
NuBus	none	none	3	3
Other				
Keyboard included	standard	standard	extended	extended
Size (L x W x H)	11.2 x 9.7 x 13.2 in.	15 x 12.2 x 3 in.	16.5 x 13 x 6 in.	16.5 x 13 x 6 in.
Weight	17.1 lb	8.8 lb	25 lb	25 lb
Warranty	1 year	1 year	1 year	1 year
On-site (in-home) service	1 year	1 year	1 year	1 year
Toll-free technical support	1 year	1 year	1 year	1 year

*Estimates from an Apple spokesperson one month before product release.

†Available from third-party sources.

‡CD-ROM sound output is stereo.

XEROX

They wanted to bring color copying in-house. We've just opened the door.



What we put together.

The Xerox 5775 Digital Color Copier. Increased color document productivity. Direct Xerox service, the industry's only dedicated toll-free support line and the Xerox Total Satisfaction Guarantee.

Tammy M. Johnson
Xerox Account Representative



Color documents were always of supreme importance to the people at this world-famous movie and publishing company. In fact, they spent thousands per month on outside color copying services. They wanted their own machine but no one had put together the kind of performance and support they needed. Then Tammy Johnson and the Xerox team introduced them to the Xerox 5775 Digital Color Copier.

They were all impressed by the color quality and speed of the Xerox 5775. And the numbers people were especially attracted to the low costs per copy and high reliability figures. Then the creative people got their hands on it.

They found the color touch screen so easy to use that it opened up a whole new world of creative possibilities.

And they were pleased to learn that soon they could fully network the Xerox 5775 to Macs and IBM PC-compatibles.

The only question that remained was service and support. Xerox had the answer. One person to call anytime for anything, direct Xerox service for all components and the Xerox Total Satisfaction Guarantee.

If you want to put the power of color to work in your business, open the door to Xerox. We'll put it together for you. For more information on the Xerox 5775, call 1-800-TEAM-XRX, ext. 702.

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The Document Company



VIDEO

DiVA VideoShop

DiVA's QuickTime-editing software has innovative tools but suffers from poor sound handling.

As the second major entry into the QuickTime-editing arena, DiVA VideoShop locks horns with Adobe Premiere. VideoShop addresses a wide variety of video-editing needs but suffers from several major gaps in its feature set, including poor sound handling and a hamstrung HyperCard implementation.

HyperCard Core

In addition to facilities for recording, cataloging, editing, and outputting QuickTime movies, VideoShop provides tools for integrating movies with still images and sound files. Because VideoShop is a HyperCard-based application, its major selling point is its support for HyperCard as an inexpensive and easy-to-use multimedia authoring system (the HyperCard application is included with the program). To exploit all of VideoShop's features, you must be using System 7.

VideoShop's file-management hierarchy resembles that of the Finder. The difference is that VideoShop's Finder automatically filters out everything except QuickTime movies, sound files, and PICT documents. If you have a 13-inch screen, you may want to consider upgrading to a larger monitor, because smaller screens tend to fill up with overlapping folder windows.

VideoShop's tools for organizing, cataloging, and searching for QuickTime clips are top-notch. The program even lets you attach notes and keywords to files. Another unique feature is the micon, an animated icon that represents a QuickTime movie. This feature is so useful for identifying movie files that we would like to see it included as a standard option in every QuickTime tool.

If you have a QuickTime-video frame grabber and the appropriate VDIG driver, you can record QuickTime movies directly from within VideoShop (to find out if your digitizer board has the appropriate driver, check with DiVA or the hardware vendor). The quality and frame rate of video that's been captured from

within VideoShop is quite good, and the feature worked flawlessly with Super-Mac's VideoSpigot.

Making Movies

You begin editing and splicing QuickTime movies by dragging them from their respective folders into VideoShop's time-line-based Sequencer. The Sequencer displays movie elements in either Storyboard View or Time View. In Storyboard View, you can organize the various elements of your movie, including micons, stills, and audio files. Here, movies are represented by a single frame. In Time View, however, you can view the individual movie frames within a sequence. Time View is the program's main editing environment for cutting, copying, and pasting QuickTime movies, sound files, and still images.

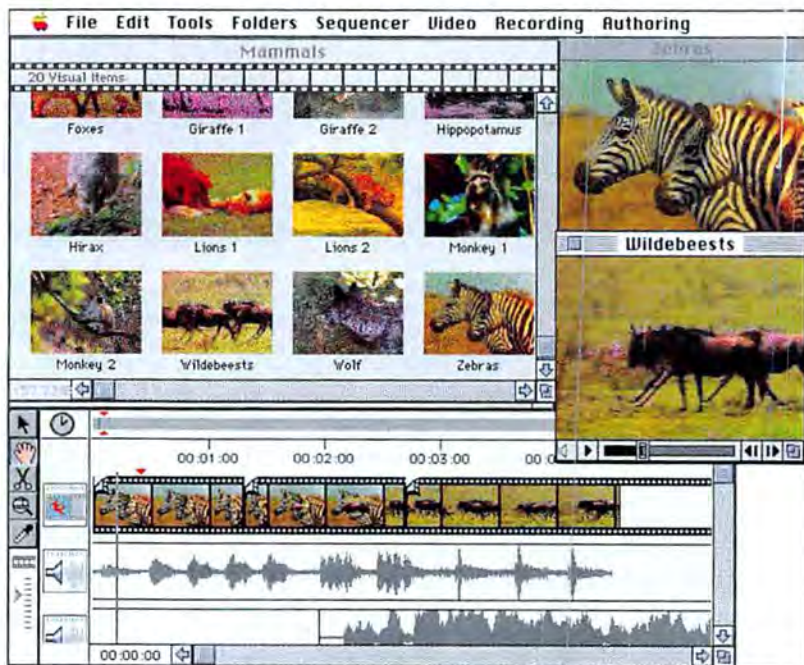
VideoShop provides tools for creating a variety of special effects. You can, for

example, superimpose a still image or a QuickTime movie on another movie file and use color keying to make the color of the foreground image or movie transparent so the background movie shows through. Unlike Premiere, however, VideoShop doesn't support alpha channels for multitransparency effects.

VideoShop's selection of transition effects is sufficient although not as robust as Premiere's. What it lacks in number, it makes up for in quality, however. Besides standard effects such as wipes and barn doors, the package includes some unusual transitions, the most striking of which is the cross-zoom effect.

When you create transitions, the effects are rendered immediately at full size and saved as separate QuickTime movies. Missing is a graphical representation of transitions as they relate to the QuickTime movie footage they accompany — you view rendered transitions as separate movies only. This approach can be confusing, especially when you're working with movies that contain many transition effects.

One outstanding feature that you'll find only in VideoShop lets you combine multiple QuickTime movies and output them as one frame. You can stretch, distort, and resize the movies,



DiVA VideoShop is a full-featured tool for editing QuickTime movies. A strong point is the program's tools for organizing movie elements. VideoShop's lack of support for audio fades in transitions detracts from the program's usefulness.

and you can drag them into any position of the output frame, so you can create picture-in-a-picture effects, miniature QuickTime-video walls, and other complex multiple-document composites.

The VideoShop package includes the Image Bank CD-ROM, a collection of several hundred business-oriented QuickTime movie clips.

Audio Idiosyncrasies

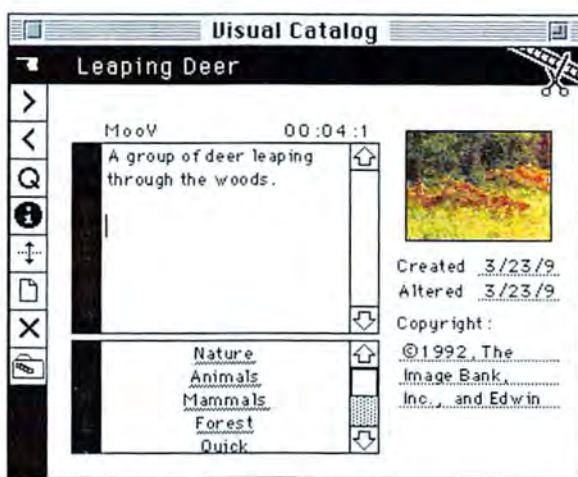
Although DiVA has done many things right with VideoShop, the package is marred by two serious defects. First and foremost is the lack of production-oriented audio tools. VideoShop recognizes SND and IFF files but not the more widely used SoundEdit files.

Even more disappointing is the software's inability to fade an audio file in and out to accompany a transition between two movies. Instead, VideoShop slows down the playback speed of the two movies to allow the audio to play in its entirety without overlapping the movies, an interesting but misguided solution that can adversely affect audio and video synchronization within QuickTime files.

Although it's true that you can change the volume of an entire sound file or selections of a sound file with VideoShop, using this technique to create smooth fades is frustrating at best. Moreover, VideoShop provides no facilities for adding sound effects (such as reverberation) to imported sound files.

Because audio is an integral part of most QuickTime movies grabbed from video sources, VideoShop's lack of audio tools severely limits its practicality. Even though you can use a separate program, such as SoundEdit Pro, to edit and manipulate audio files, it's difficult to reintegrate and synchronize the results with the corresponding movie file.

Another significant drawback is VideoShop's incomplete HyperCard support. Although you can add a QuickTime movie created in VideoShop to a HyperCard stack simply by dragging the movie onto a card, playing the movie from within HyperCard is not as simple as it should be. The underlying HyperCard script that's inserted into the target stack assumes that VideoShop will always be present when you're running the stack or that a VideoShop run-time engine is present on the disk with the HyperCard stack. If you distribute the stack without satisfying these requirements, the inserted



VideoShop makes it easy to search for QuickTime movie clips. You can use names or keywords for searches, and each clip has a window that displays its description, length, associated keywords, date of creation, and copyright information.



As you apply transition effects between movies with VideoShop, the program displays the effects in actual size. You can change the rendering quality and smoothness of the transition with sliders.

QuickTime movie won't play.

DiVA makes a run-time engine available, but you must call the company to request it. Moreover, depending on the application, the company may charge you a licensing fee. According to DiVA, this strategy is likely to change with the next release, which will include a run-time engine. VideoShop's documentation also suffers from many gaps. For example, missing are entries for two crucial topics — file formats and sound. In general, the manual is light on detail.

The Bottom Line

VideoShop's outstanding features are its tools for capturing, organizing, and searching for QuickTime clips. Also, the program's ability to visually organize and overlay multiple QuickTime documents (including PICT images with embedded QuickTime movies) is unique

and powerful, letting users create a variety of sophisticated composite effects. However, the program's inability to do audio fades during movie transitions, coupled with its imperfect HyperCard support, are reason enough to wait for the next version, which hopefully will tie up these loose ends.

— David Biedny

Get Info

DiVA VideoShop

Published by: DiVA Corp., Suite 3332, Cambridge, MA 02142; 617-491-4147.

Version: 1.0.

List Price: \$599.

UTILITIES

MacTools 2.0

Central Point's data-protection utilities roll disk repair, backup tools, and network-ready virus protection into one blockbuster package.

After striking out with its first iteration of MacTools, Central Point Software has stepped up to the plate once again with the latest version of its disk-utilities package for the Mac. MacTools 2.0 is a complete rewrite of the original software that features an exceptionally consistent interface, antiviral software, and a wide range of useful backup options, all of which combine to make it the most full-featured disk-utility package available.

Data Recovery

The core of any disk-repair package is its data-recovery facility. MacTools' DiskFix repairs damaged volume directories in place, and when directories are irrevocably damaged, it attempts to salvage any recoverable files. Although we found DiskFix exemplary in its thoroughness at analyzing disks and identifying trouble spots, we encountered several

problems. To start, DiskFix's thorough volume checking exacts a performance price — DiskFix's scans are so slow that some users may be discouraged from performing regular preventive scans. A second problem involved a corrupted preference file that made DiskFix launch and then suddenly quit (Central Point promised to have this problem fixed by the time this review appears).

Overall, however, we found DiskFix to be a quite competent disk-repair utility. A key aspect of data protection is the ability to recover accidentally deleted files. MacTools' Undelete feature uses a variety of techniques to accomplish this task. To perform its operations, it uses information stored by Mirror, a control panel that maintains a backup of volume directories. Mirror also takes note of the physical location of deleted files on a disk. With Mirror active, Undelete can recover files almost instantaneously.

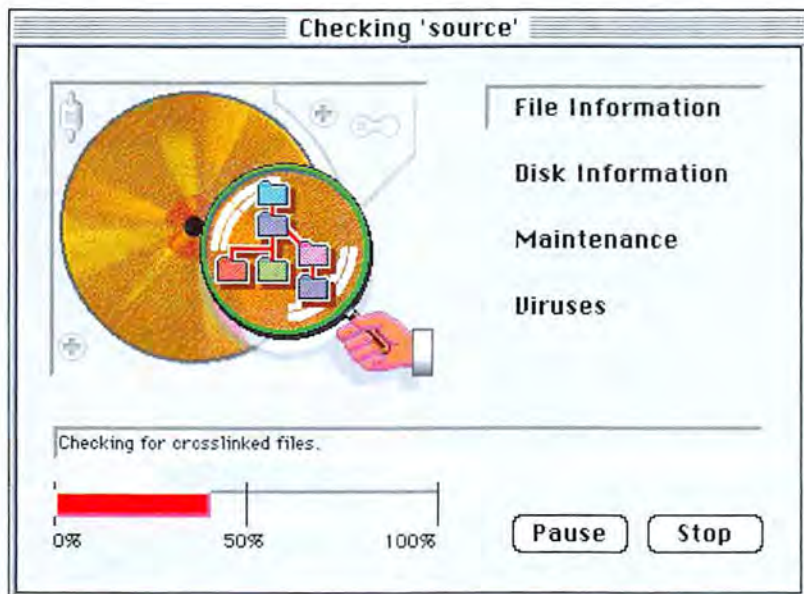
In addition, MacTools makes two other options available for recovering deleted files. One uses signatures, or distinctive code patterns, to find files of a particular type. Many Mac files, such as those created with QuarkXPress and MORE, are marked by recurring patterns that are unaffected by the files' contents. Undelete comes with an extensive list of signatures for a variety of common file types that enable it to perform searches. In addition, Undelete can create new signatures based on other file types it finds. To add a new signature, you simply select a file and Undelete scans the disk for all files of that type. If it uncovers a pattern, it creates the new signature; if it can't find a pattern, it will notify you accordingly.

Another common problem occurs when the contents of files become corrupted. MacTools is the only disk-repair package that attempts to repair damaged Microsoft Excel 2.2 and 3.0 files, which are particularly prone to corruption, as well as damaged Microsoft Word files. The program's FileFix feature is for copying undamaged data, which usually includes macros and formulas, from a corrupted spreadsheet file to a new document.

Virus Protection

In addition to disk-analysis and data-recovery tools, MacTools provides antiviral software in the form of a control panel and an application. MacTools' implementation is particularly well suited to network environments. To ensure that all network users are adequately protected, administrators can prevent users from disabling certain functions (floppy-disk scanning is an especially popular candidate) by locking the settings on the control panel prior to distribution.

As with most commercial antiviral software, users can reconfigure MacTools' facility to recognize and fix new viruses with the help of signature files, which contain information that allows the software to detect and fix infected files. You can load new signature files from within the MacTools Anti-Virus application or use a novel feature that's extremely useful for networked environments: The user can select a file server's folder in the Anti-Virus control panel to check for new signature files each time the server is mounted; the software automatically installs any new signature files placed into that folder.



The latest version of MacTools is the most comprehensive bundle of disk-repair utilities you can buy. The disk analyzer, shown here, performs extremely thorough scans on volume directories, although it can be painstakingly slow.

Rounding out the MacTools collection are a backup module and two disk utilities. The full-featured Backup application lets you back up your data to floppies, other volumes, an Apple 40-megabyte tape drive, or a WangDAT 1300 or WangDAT 2600 DAT drive. Once you've selected the backup media and the volumes, folders, and files you want to back up, you can opt for a full, incremental, or differential backup. You can also enable compression, encryption, or even virus scanning prior to backup. After specifying your backup settings, you can save them in a setup file for later use. With the Scheduler extension, you can schedule backups to occur at specific times.

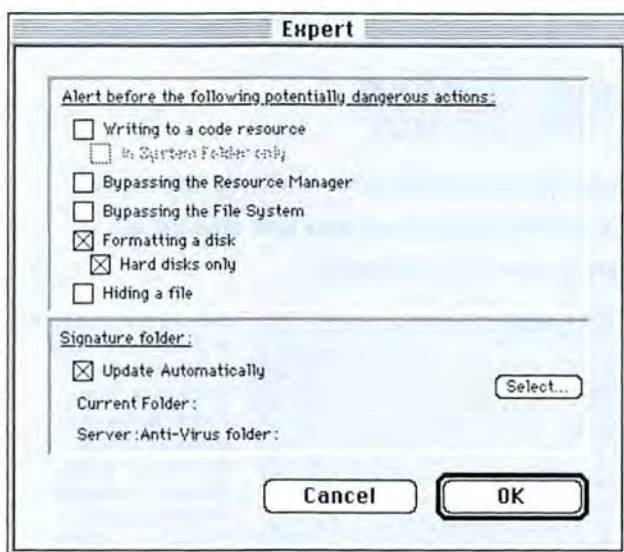
Optimizer and DiskEdit are the MacTools disk utilities. An optimizer lets you access files quickly by consolidating them and moving them to the beginning of a volume. MacTools' Optimizer goes one step further by letting you specify the order in which file types are placed on a volume after optimization. The DiskEdit utility lets you examine a volume's data at the byte level.

One of MacTools' chief strengths is the consistent user interface it provides throughout all of its modules. The interface is so well engineered and consistent that it virtually eliminates the distinctions among modules, so MacTools operates more as a single software entity than as a modular application. In addition, the package makes efficient use of features by sharing them among modules. For example, both the data-recovery and the backup modules use the virus-scanning facilities and the Scheduler extension is used by both the disk analyzer and the backup facility.

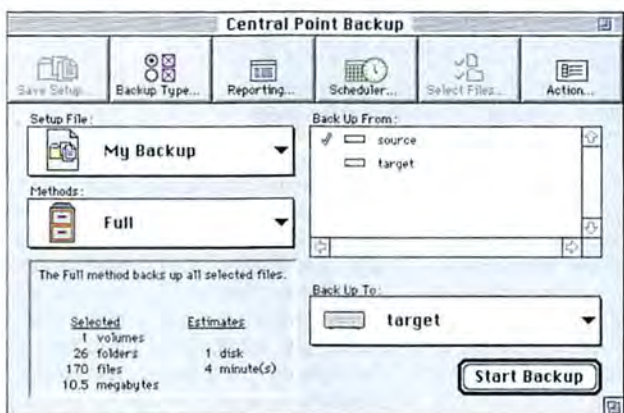
The Bottom Line

MacTools 2.0 is the most comprehensive collection of disk-repair utilities currently available. Combining data-recovery, antiviral, and backup software in one package, it's an impressive value. In addition, the thoroughness of its disk-analysis and -repair utility is exemplary and the software is particularly well suited to network environments.

On close inspection, however, we uncovered a few imperfections that may give single users a rough ride. Disk scans are painstakingly slow, and we encountered a problem with a corrupted preference file. We hope that these rough edges will be sanded off MacTools 2.0



MacTools 2.0 is designed with network environments in mind. You can set the Anti-Virus control panel to perform networkwide automatic updates to the program's virus-detection capabilities as new viruses are discovered.



An outstanding feature of MacTools is the consistent and well-designed interface it provides throughout its modules. The Backup screen, shown here, is designed to display all pertinent settings at a glance.

by the time this review appears.

It was also disconcerting to find that at least two versions of MacTools 2.0 (discernible only by their modification dates and file sizes) existed at the time of this review. Central Point's current policy is to perform "silent" revisions without changing version numbers or informing users. Only by complaining about specific problems to Central Point's technical support can users receive the latest revision. According to the company, this policy will be dropped in the near future.

Overall, we found that MacTools' strengths make it a valuable tool for experienced users charged with the task of regularly recovering damaged disks. For those users — who are likely to maintain a full arsenal comprising every available recovery package — MacTools is a powerful addition. Less experienced

users who are looking to buy a single data-protection package will also do well to consider MacTools. Combining versatility with an exceptionally well-designed and consistent interface for all of its modules, MacTools is a solid addition to any software library.

— Stephan Somogyi

Get Info

MacTools 2.0

★★★★

Published by: Central Point Software, 15220 N.W. Greenbrier Parkway, Suite 200, Beaverton, OR 97006; 503-690-8090.

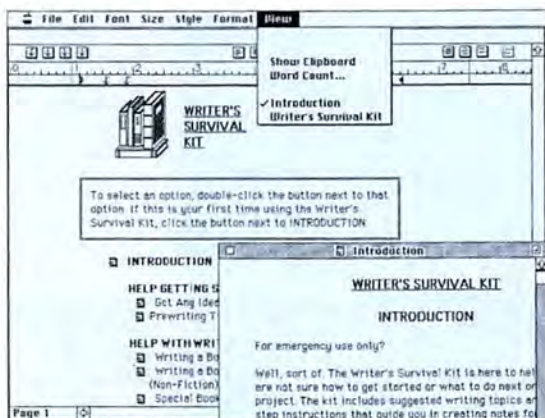
Version: 2.0.

List Price: \$149.

WORD PROCESSING

Bank Street Writer

Scholastic Software's classroom writing tool gets high marks as an instructional aid but flunks as a page-layout program for students.



With its well-designed instructional tools and solid word processor, Bank Street Writer is a good candidate for teacher's pet. Students, however, are likely to be frustrated with the program's page-layout features.

Bank Street Writer combines word-processing and page-layout tools in a program designed primarily for classroom use. Although the program's instructional tools and word processor are likely to chalk up points with students and teachers alike, the page-layout aspect of the program may well end up with a dunce's cap.

Teacher's Pet

Bank Street Writer succeeds both as a word processor for students and as an instructional aid for teachers who use computers in the classroom. The package provides several tools that let teachers create tests and tutorials for presentation on the Mac. Most notable among these tools are three hypertextlike buttons — students can click on one button to open text notes, on another to play sounds, and on a third to launch a Bank Street Writer document.

According to Scholastic Software, an upcoming version of Bank Street Writer will also include a button for playing QuickTime movies.

Another of Bank Street Writer's instructional-aid features is frozen text, which can't be edited or deleted. This feature is ideal for presenting instructions and questions on worksheets and tests. A related option allows you to

specify entire files as read-only.

Bank Street Writer's standard word-processing features include all the essentials for text editing and formatting plus a few extras. You can, for example, add frame borders around selected paragraphs, and the program provides limited options for running text around graphics. It also provides a spelling checker and a thesaurus.

Unfortunately, the second module of the program, page layout, is not nearly as successful. Overall, it's probably too difficult for young students to master and too limited in functionality for more-advanced students.

Bank Street Writer's page-layout features function independently from the word processor. To create a layout, you must first open a layout file and then place blocks on pages, just as you would with a program such as PageMaker. You can choose from eight predesigned layouts, or you can design your own. Layouts can comprise any number of pages, and each page can have a different design. When the layout is complete, you can begin to assign Bank Street Writer text files to each block as well as create links to snake text through several blocks.

Bank Street Writer lets you create fairly sophisticated newspaper-style layouts, but given its educational focus, the

program makes the layout process much too cumbersome. To begin with, it lacks a command for automatically generating a selected number of columns. Furthermore, the program can't directly import any graphics file. If you want to incorporate a graphic in a page layout, you must first paste the graphic into a Bank Street Writer text file and then assign it to a block in the layout module. This process is not only inconvenient but it also makes it difficult to correctly position the graphic within a block. In addition, if you have multiple blocks on a page, the program doesn't provide a way for you to control the way in which text flows among linked blocks — it must always flow first from left to right and then from top to bottom. Finally, there's no way to view completed layouts, except in Preview mode. This is problematic, because you can't edit text in Preview mode; instead, you must return to the original document file to make your changes.

Bank Street Writer's main competition as a word processor for students is The Writing Center, from The Learning Company. The two programs' word-processing tools are generally on a par, but The Writing Center lacks Bank Street Writer's buttons and frozen text, and it doesn't provide as wide a range of page-layout features. The page-layout tools it does provide, however, are far more effective and simpler to use than Bank Street Writer's.

The Bottom Line

As an instructional aid, Bank Street Writer gets high marks. For elementary- or secondary-school teachers looking for a classroom tool that will let them present tests and worksheets on the Mac, Bank Street Writer is a good choice. The program can also double as a solid word processor for students, although its page-layout module is a disappointment.

— Ted Landau

Get Info

Bank Street Writer

Published by: Scholastic Software, 2931 E. McCarty Street, P.O. Box 7502, Jefferson City, MO 65102; 800-541-5513.

Version: 1.0.2.

List Price: \$129.95.

DateBook

After Hours' personal-appointment scheduler features an innovative link to TouchBASE.

If you view time management as more of a science than a chore, the latest entry into the calendar-software arena may suit your taste. After Hours' DateBook combines appointment-scheduling, reminder, and to-do-list features. Unlike Now Software's Now Up-to-Date (see review, July '92, page 76), which handles workgroup scheduling over a network as well as personal appointments, DateBook is primarily a single-user tool. What sets it apart from other calendar software is its attention to detail and its innovative link to After Hours' TouchBASE address-book manager.

Make a Date

As a DateBook user, you'll spend most of your time entering events in your calendar and keeping a to-do list. The program opens to the current calendar month, although you can opt for a daily, weekly, or yearly view as well as a list view of all your events and to-do items. A handy icon palette lets you switch easily among the different views of your schedule. To enter an event, you simply click on the appropriate date on the calendar, click on the New button, and fill in start and end times and event information in an entry screen. DateBook can handle event

durations in one-minute intervals.

The entry screen is a good indicator of DateBook's talents for tracking detail. In addition to a summary field, a notes field lets you jot down notes about each event. You can assign events to a particular group (business or personal, for example) as well as to categories (lunch or presentation, for example). You can set reminders, both visual and audio, and recurring events and to-do items.

To enter to-do items, you click on the To Do button in the entry screen and it changes to present Priority and Carry Forward settings for the to-do items you enter. As you complete items and check them off, a percent-complete bar in the Day View shows how close you are to completing the tasks assigned for a particular day.

Although DateBook's interface is not as elegantly simple as that of Now Up-to-Date, it's well crafted and manages to convey a lot of scheduling information without seeming cluttered or daunting. If you've really turned time management into a science, you can get DateBook to display the activities you've scheduled for a day or week in Gantt-chart format. The program offers numerous other ways for customizing how it organizes and

presents scheduling information. For example, you can add icons (such as birthday cakes and menorahs) and multiday banners to calendars and set priority levels for your to-do items.

DateBook's navigation tools are top-notch. You can move quickly to a date six months in the future simply by clicking on the program's Date Selector and scrolling through a list of months. When you have the month you want, DateBook displays the corresponding calendar and you can move the cursor to the

day you're searching for.

Another strength is DateBook's link to TouchBASE. This feature is an implementation of IAC (interapplication communication) and, as such, requires System 7. The link lets you search your TouchBASE files, view selected records, copy records into the DateBook description field, and dial phone numbers — all from within DateBook. You can also do the reverse and send dates and notes pertaining to your contacts from DateBook to the TouchBASE notes field.

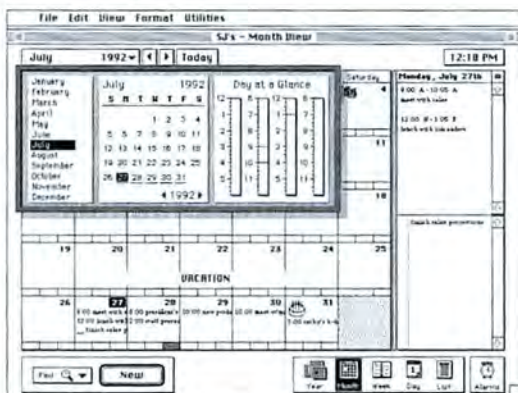
Rounding out DateBook's list of features is a wide range of printing options (including formats for DayTimer, FiloFax, and DayRunner), a handy hot-key feature that lets you view and enter events and to-do items into a miniature window without launching the application, and good use of keyboard command equivalents. Version 1.5 features a file-sharing option that lets users on a network share calendars.

DateBook's one serious limitation is its inability to handle overlapping events, although After Hours has promised this feature in an upcoming release.

The Bottom Line

DateBook goes to great lengths to meet the needs of the most fastidious schedule keepers while maintaining easy access to basic tools for those who simply want an electronic version of their paper calendar. DateBook's IAC-based link to the TouchBASE address-book manager is a standout, and the program's calendar-navigation tools are first-rate. The only important missing ingredient is the ability to handle overlapping events. For those who don't require the workgroup-scheduling features of Now Up-to-Date and are searching for an easy-to-use calendar program with a slew of time-management features, DateBook is an excellent choice.

— Susan Janus



DateBook features alarms, a to-do list, excellent calendar-navigation tools, and enough time-management features to satisfy the most fastidious of schedule keepers.

Get Info

DateBook

Published by: After Hours Software, Tri Center Plaza, 5990 Sepulveda Blvd., Van Nuys, CA 91411; 818-780-2220.

Version: 1.5.

List Price: \$125.

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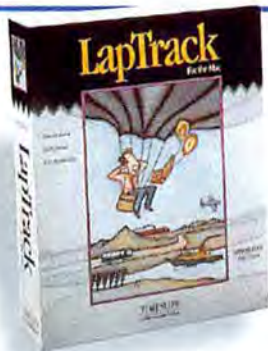
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After Hours Software

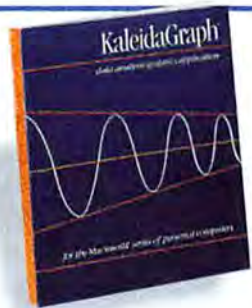
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- ★ **Lotus Development** ... 30 day MBG
- 3606 **1-2-3 for Mac.. 329. 3604 Upgrade** 95.
- ★ **MECA** ... 60 day MBG
- 2796 **Managing Your Money limited special** 32.
- ★ **Microlytics** ... 60 day MBG
- 6461 **WordFinder Plus 4.02**..... 39.
- 7820 **Random House Encyclopedia 1.0**..... 68.
- ★ **Microsoft** ... 30 day MBG
- 2884 **Works 3.0 (Sept.) 155. 8173 Upgrade** 79.
- 3669 **Excel 4.0...** 295. 5237 **Upgrade** 95.
- 4902 **Word 5.0...** 295. 1503 **Upgrade** 125.
- 5454 **The Microsoft Office 2.5**..... 475.
- ★ **Niles & Associates** ... 30 day MBG
- 4602 **EndNote 1.5.. 85. 8010 Plus 1.2.. 145.**
- Nisus Software**
- 5683 **Nisus 3.06 238. 1612 Compact 3.3 92.**
- ★ **Nolo Press** ... 30 day MBG
- 4228 **Personal RecordKeeper 3.0**..... 30.
- 2981 **WillMaker 4.0 (not valid in LA.)**..... 35.
- 1204 **Living Trust 1.0 (not valid in LA.)**..... 45.
- ★ **OCCAM Research Corp.** ... 60 day MBG
- 3697 **MUSE 1.01**..... 469.
- ★ **Palo Alto Software** ... 60 day MBG
- 6932 **Employee Handbook Toolkit 5.2**..... 65.
- 6975 **Business Plan Toolkit 4.0**..... 75.
- ★ **Pastel Development** ... 30 day MBG
- 1785 **DayMaker 2.0 (Oct.) 79. 1011 (network)** 92.
- ★ **Portfolio Systems** ... 30 day MBG
- 7992 **DynoPage 1.7 or 6916 Dynodex. ea.** 49.
- ★ **PowerUp** ... 30 day MBG
- 7696 **Calendar Creator 2.0**..... 44.
- ★ **ProVUE** ... 60 day MBG
- 4582 **Panorama II 2.0.6**..... 239.
- ★ **Reality Technologies** ... 30 day MBG
- 6929 **WealthBuilder 1.02**..... 95.
- ★ **Reference Software** ... 30 day MBG
- 6268 **Grammatik Mac 2.0**..... 39.
- Round Lake Publishing**
- LetterWorks, SALES or LEGAL**..... ea. 45.
- ★ **Shana Corporation** ... 30 day MBG
- 7692 **Informed Designer 159. 8810 In. Mgr.** 99.
- ★ **SoftSync, Inc.** ... 30 day MBG
- 7129 **Accountant, Inc. 335. 3828 MultiUser** 569.
- Spyglass, Inc.**
- 2027 **Transform 2.1**..... 399.
- ★ **Symantec** ... 30 day MBG
- 2237 **GreatWorks 2.0 129. 2278 Upgrade** 89.
- 3422 **More 3.1**..... 265.
- ★ **Synergy** ... 30 day MBG
- 6617 **KaleidaGraph 2.1.3**..... 149.
- ★ **Teleware** ... 30 day MBG
- 7616 **M.Y.O.B. 3.0**..... 138.
- ★ **TIMESLIPS** ... 30 day MBG
- 1701 **LapTrack for the Mac**..... 52.
- 2986 **Timeslips III 2.1**..... 194.
- ★ **T/Maker** ... 30 day MBG
- 1858 **FaxMania (birthdays to bulletins)**..... 25.
- 3639 **WriteNow 3.0 149. 5259 Upgrade** 49.
- 5253 **WriteNow 3.0 Competitive Upgrade** 69.
- ★ **Vertical Solutions** ... 60 day MBG
- 5886 **FastLabel 3.1.6**..... 44.
- ★ **WordPerfect** ... 60 day MBG
- 3800 **WordPerfect 2.1 279. 4711 Upgrade** 89.

With FREE Editorial Advisor



Nisus Software
5683 **Nisus 3.06**—Serious word processing power with unlimited undos, noncontiguous selection, page layout & drawing tools, macros, & style sheets. Incl. free Editorial Advisor, a reference library in grammar, style, & usage \$238.

- ★ **Wordstar** ... 30 day MBG
- 6984 **Correct Grammar 3.01**..... 55.
- 3554 **American Heritage Dictionary 1.0**..... 55.
- ★ **Working Software** ... 60 day MBG
- 5896 **Last Resort 38. 3792 Spellswell 2.2** 44.

GRAPHICS & DESIGN PUBLISHING, PRESENTATIONS

- ★ **Abracadata, Ltd.** ... 30 day MBG
- 9990 **Design Your Own Home - Architecture, 9992 Interiors or 9994 Landscape...** ea. 48.
- Adobe Systems**
- Adobe Type Sets for Business**..... ea. 95.
- Adobe Type Library (Vol. 1-308)**..... call
- 6957 **Adobe Type Reunion 1.0.2**..... 41.
- 5750 **Adobe Type Manager 2.0.3**..... 59.
- 6053 **Plus Pack 2.0 118. 6098 TypeAlign** 61.
- 4145 **Adobe Premiere 2.0 (Sept. '92)**..... 429.
- 8171 **Adobe Illustrator 3.2 (with ATM)**..... 368.
- 5001 **Streamline 119. 6644 Photoshop** 548.



New Version 2.0

Adobe Systems
4145 **Adobe Premiere 2.0**—Combines video footage, audio recordings, animation, still images & graphics to create high-quality digital movies. Motion control, Film Strip file, PostScript rasterizer & more are new with 2.0 \$429.

Or afraid you



★DeltaPoint ... 60 day MBG

3558 **DeltaGraph Professional 2.0**—Over 35 different chart types for business, presentation, scientific, statistics, & engineering. From 10/1/92 thru 1/31/93, receive a FREE Texas Instrument advanced scientific calculator (TI-68)... **\$199.**

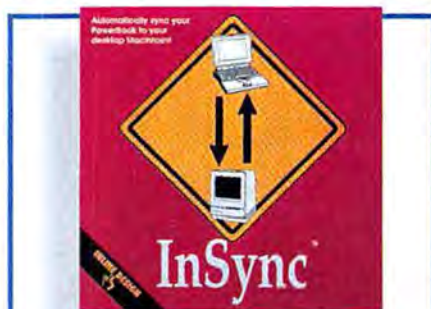
- ★Aldus ... 30 day MBG
 - 6674 **Aldus Personal Press 2.0** 99.
 - 2461 **Aldus Gallery Effects 1.0** 128.
 - 3506 **SuperPaint 129.** 3507 **Super 3D**.. 325.
 - 4751 **Persuasion 325.** 1330 **FreeHand**. 394.
 - 7088 **PageMaker 494.** 7541 **IntelliDraw 199.**
- Altsys
 - 1983 **EPS Exchange 2.0** 89.
 - 1195 **Fontographer 3.5** 258.
- ★Ares Software ... 30 day MBG
 - 8878 **FontMonger 1.5 (Sept. '92)**..... 93.
- ★Baseline Publishing ... 30 day MBG
 - 8055 **Screenshot 1.2** 34.
- Broderbund Software
 - 3572 **Kid Pix 1.2**.. 34. 7293 **Companion 23.**
 - 1427 **Print Shop** 35.
 - 6281 **TypeStyler 2.0 (with ATM)**..... 126.
- ★Claris ... 30 day MBG
 - 2518 **MacDraw Pro 275.** 7505 **Upgrade 95.**
 - 8007 **Claris CAD 2.0**..... 599.
- Custom Applications
 - 8037 **Freedom of Press Light 3.03 (17 fonts)**. 84.
- ★DeltaPoint ... 60 day MBG
 - 3558 **DeltaGraph Professional 2.0 (w/calc.)** 199.
- ★Deneba Software ... 30 day MBG
 - 3227 **Canvas 3.0.4** 259.
- ★Expert Software ... 30 day MBG
 - 4870 **Expert Color Paint 1.0** 29.
 - 8619 **Expert Home Design 1.0** 29.



★Aladdin Systems ... 30 day MBG

6740 **StuffIt Deluxe 3.0**—Compression solution solves all your needs from archiving to transparent compression... **\$65.**
7410 **StuffIt Space Saver 1.0**—Increases disk space without changing the way you work **34.**

- Fractal Design
 - 5425 **Painter 1.2** \$235.
- ★Letraset ... 30 day MBG
 - 4709 **LetraStudio 139.** 6300 **FontStudio 359.**
- FONTEK Library (full line, 140 fonts) ea. 30.
- Light Source
 - 3733 **Olofo 1.1.1** 275.
- ★Linguist's Software ... 60 day MBG
 - Over 100 language fonts..... call Macromedia
- 7651 **Action! Mac (Sept. '92)**..... 349.
- 7441 **SwivelPro 479.** 3450 **SwivelMan 619.**
- 7653 **MacroModel**..... 999.
- Manhattan Graphics
 - 4990 **Ready, Set, Go! 5.0** 219.
- ★MicroMaps ... 30 day MBG
 - 7556 **MapArt (PCT) or 7555 (EPS)**..... ea. 89.
- ★Microsoft ... 30 day MBG
 - 2878 **PowerPoint 2.01E** 245.
- Postcraft International
 - 2210 **Effects Specialist 1.04** 89.
- Quark
 - 7612 **QuarkXPress 3.1** 549.
- ★Spectral International ... 30 day MBG
 - 4962 **Infini-D 2.0** 699.
- ★TeleTypesetting ... 30 day MBG
 - 8058 **T-Script**..... 91. 3014 **Deluxe**..... 315.



★Inline Design ... 30 day MBG

9843 **InSync 1.0**—Finally, a way to synchronize data with your PowerBook and desktop Macintosh. Synchronizes files either automatically or on command via a network or SCSI port **\$79.**

- Terrace Software
 - 9970 **Mum's The Word Plus (gardening)**... 107.
- ★Timeworks ... 30 day MBG
 - 7115 **Publish It! Easy 3.0**..... 109.
- 7409 **ColorIt! 2.0** special 129.
- ★T/Maker ... 30 day MBG
 - ClickArt (bitmapped)** 38. or (EPS) 82.
- ★Virtus Corporation ... 30 day MBG
 - 4488 **WalkThrough 1.1** 309.

PROGRAMMING UTILITIES, HYPERCARD, SECURITY

- ★Abbott Systems ... 30 day MBG
 - 2515 **Calca 1.0** 39. 5236 **CanOpener 2.0** 59.
- ★Aladdin Systems ... 30 day MBG
 - 7410 **StuffIt Space Saver 1.0**..... 34.
 - 6740 **StuffIt Deluxe 3.0** 65.
- ★Aldus ... 30 day MBG
 - 5100 **SuperCard 1.6** 195.
- ★ALSoft ... 30 day MBG
 - 9808 **MasterJuggler 1.58**..... 25.
 - 9807 **DiskExpress II 2.11** 48.
 - 5204 **ALSoft Power Utilities 1.0.2** 62.
- ★Alysis Software ... 30 day MBG
 - 2687 **SuperDisk!** 49. 1608 **More Disk Space** 42.



Apple Computer

1074 **System 7 Personal Upgrade Kit**—Add powerful new capabilities like Publish and Subscribe, MultiTasking, Balloon Help, Virtual Memory, and more to your existing system while also making it easier to use **\$79.**

Apple Computer

- 1074 **System 7 Personal (w/free PCTV video)** 79.
- 3413 **System 7 Group Upgrade Kit**..... 249.
- 7072 **QuickTime Starter Kit** 149.
- ★ASD Software ... 30 day MBG
 - 7085 **FileGuard 2.7 (1 user)** 138.
 - 7422 **(5 user)**... 479. 7423 **(10 user)**... 799.
- ★Baseline Publishing ... 30 day MBG
 - 7783 **INIT Manager 1.1**..... 33.
 - 3114 **DiagnoSYS** 39.
- ★Berkeley Systems ... 30 day MBG
 - 2198 **More After Dark (M.A.D.)**..... 23.
 - 5737 **After Dark 2.0V** 28.
 - 2196 **After Dark & M.A.D. Bundle**..... 39.
- ★Casa Blanca Works ... 30 day MBG
 - 1593 **Drive 7 2.2** 49.
- ★CE Software ... 60 day MBG
 - 1727 **CalendarMaker 3.0.1** 31.
 - 8024 **QuickKeys 2.1.2** 89.
- ★Central Point ... 30 day MBG
 - 5041 **Mac Tools Deluxe** limited special 89.
- ★Claris ... 30 day MBG
 - 8734 **HyperCard Development Kit 2.1** 139.
- ★Connectix ... 30 day MBG
 - 8441 **CPU 1.0 (Connectix PowerBook Utilities)** 49.
- Coral Research
 - 7310 **TimeLog**..... 62. 7309 **(10 Pack)**... 399.
- ★Dantz Development ... 30 day MBG
 - 3393 **DiskFit Pro 1.0** 72.
 - 5255 **Retrospect 147.** 7945 **Remote 1.3** 264.
 - 7946 **Remote (10 Pak)** 147. 3112 **(50 Pak)** 649.
- ★Fifth Generation ... 30 day MBG
 - 4287 **PYRO! 4.01** 27. 3955 **Suitcase 2.1** 53.
 - 7704 **Public Utilities (Sept. '92)**..... 98.
 - 8286 **SuperLaserSpool 3.0** 99.
 - 5178 **FastBack Plus or 5725 DiskLock**... 125.
 - 7404 **DiskDoubler 3.7.5** 49.
 - 4838 **AutoDoubler 1.0.6**..... 49.
- ★FWB, Inc. ... 30 day MBG
 - 7929 **Hard Disk Utilities Personal Edition** ... 49.
 - 2999 **Hard Disk Toolkit 1.1.1** 125.
- ICOM Simulations
 - 6296 **Intermission**.. 29. 3731 **OnCue II**.. 55.
- ★Inline Design ... 30 day MBG
 - 1744 **Icon 7**..... 31. 9843 **InSync 1.0**... 79.
 - 7068 **INITPicker 3.0 (Sept. '92)**..... 38.
 - 2913 **Redux 1.63**..... 49. 1740 **Deluxe**..... 92.
- ★Kent Marsh Ltd. ... 30 day MBG
 - 9513 **FolderBolt 1.02** 71.
- ★Kiwi Software ... 60 day MBG
 - 6267 **Kiwi ENVELOPES! 3.1.6** 32.
 - 8783 **Kiwi POWER MENUS** 25.
- ★Magic Software ... 30 day MBG
 - 7267 **AutoSave II 26.** 7270 **Backmatic**.. 50.

already blew it?



★MAXA Corporation ... 30 day MBG
8692 **Snooper 2.0 Hardware & Software Kit**—Sad Mac? Diagnose from your Desktop with Snooper. Check out your hardware with over 60 tests. Rate your Mac performance. A must for your Utilities folder \$149.

★MAXA Corporation ... 30 day MBG
8692 **Snooper 2.0 Hardware & Software Kit** 149.
8694 **Snooper (software only)** 119.
★Microcom ... 30 day MBG
4803 **Virex/Mac.. 57. 8561 911 Utilities** .. 89.
★MicroMat Computer Sys. ... 30 day MBG
3732 **MacEKG II 2.0** 89.
★Microspot ... 30 day MBG
8706 **MacPalette II** 45.
8782 **MacPlot Professional** 249.
★Nine to Five Software ... 30 day MBG
9767 **Reports 2.5** 125.
★Now Software ... 30 day MBG
1793 **Now Up-To-Date**... 65. 2366 (10) . 395.
6925 **Now Utilities 4.0**... 95. 8471 (10) . 775.
★ON Technology ... 1 year MBG
6385 **On Location 2.0** 75.
Palomar Software
8210 **PLOTTERgeist 2.1** 249.
Peripheral Land, Inc. (PLI)
7326 **Mac-to-DOS 3.0** 99.



★Prometheus ... 30 day MBG
8990 **Ultima Home Office—V.32bis Ultima** with voice feature added at an even lower price, turns your Mac into an answering machine. 14,400 bps data modem with V.42bis/MNP 5 & 9600 bps S/R fax & full voice capability! \$489.

Pluma, Inc.
8704 **Cause or 8713 Net Effect** ea. \$185.
★Symantec ... 30 day MBG
5176 **Symantec AntiVirus for Mac (SAM)** 64.
6748 **Norton Utilities for Mac 2.0** 95.
3421 **THINK Pascal 165. 2688 THINK C** 199.
9957 **THINK Reference 1.0** 68.
Teknosys
5203 **HELP!** 88.
★TGS Systems ... 60 day MBG
6667 **Prograph 2.5** 299.
★Thought I Could ... 30 day MBG
4843 **Wallpaper 1.0.2** 37.
UserLand Software
4753 **Frontier 1.0** 189.
★Visionary Software ... 30 day MBG
3887 **First Things First 2.1.1** 41.

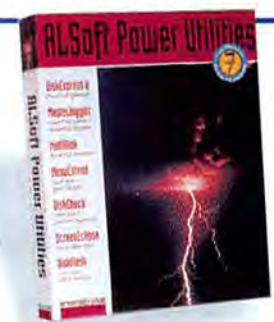
LEARN & PLAY FOREIGN LANGUAGES, TRAINING, GAMES

★Abracadata, Ltd. ... 30 day MBG
5805 **Sprout! 1.0 (veggie garden planner)**... 39.
Activision
1039 **Shanghai II** 29.
1134 **Lost Treasures of Infocom** 40.
★Baseline Publishing ... 30 day MBG
7785 **Talking Moose 4.0.2** 22.
Broderbund Software
6516 **The Playroom 2.0 (CP) (color)** 29.
Carmen Sandiego Series (CP) ea. 29.
8285 **Where/World Carmen Sandiego Deluxe** 47.
3559 **SimAnt or 5871 SimCity Supreme** .. ea. 35.
8266 **SimEarth 1.1** 40.
Buena Vista Software
1711 **Heaven and Earth** 29.
★Centron Software ... 30 day MBG
2707 **Puzzle Master** 26.
5910 **Crossword Creator** 39.
8525 **Casino Master**... 39. 8524 (Color).... 45.
★Cyan ... 30 day MBG
6320 **Manhole 1.6** 19.
★Davidson & Associates ... 30 day MBG
3922 **Talking Spell It Plus** 29.
2574 **New MathBlaster Plus** 34.
8278 **Alge-Blaster Plus** 34.
EARTHQUEST
8050 **EARTHQUEST or 3118 Ecology 1.0** 34.
Electronic Arts
5702 **4D Boxing**... 32. 1907 **PGA Golf**... 39.
★Expert Software ... 30 day MBG
6219 **Expert Astronomer 1.0** 29.
Graphic Simulations
4756 **Hellcats Over the Pacific 1.0.3** 39.
★Great Wave ... 30 day MBG
8044 **Decimal & Fraction Maze (Color)** 35.
6693 **KidsMath 2.0 or 2276 Kid's Time**.. ea. 25.
4334 **NumberMaze**.. 25. 8527 **(Color)**.. 35.
1513 **ReadingMaze (Color)** 35.
★HyperGlot Software ... 30 day MBG
(French, German, Italian & Spanish)
Word Torture ea. 34. Tense Tutor ea. 38.
Pronunciation Tutor
(Span., Fren.) ea. 34. (Germ., Chin.) ea. 38.
★Inline Design ... 30 day MBG
1562 **3 in Three or 1944 Swamp Gas**.. ea. 31.
1747 **Swamp Gas Europe** 31.
8809 **Tesseract 31. 3414 Mutant Beach** 39.
Interplay Productions
1894 **BattleChess (3D animation)** 29.
1893 **CheckMate (infinite play levels)** 31.



Buena Vista Software
1711 **Heaven and Earth**—Enjoy 4 spell-binding entertainment experiences in one. Animated cards, illusions, pendulums, and a pilgrimage all bring you to a fuller experience than the usual game, puzzle or toy..... \$29.

★Learning Company ... 30 day MBG
2670 **Reader Rabbit 3.0 (CP) (ages 4-7)**.... 34.
3687 **Super Solvers: Midnight Rescue!** 34.
3281 **The Writing Center 1.0** 51.
★Lester Productions ... 30 day MBG
7126 **Reunion 3.0** 115.
★MECC ... 30 day MBG
3963 **Oregon Trail 1.0** 28.
Number or Word Munchers ea. 18.
★Microsoft ... 30 day MBG
2868 **Flight Simulator 4.0 (CP)** 42.
★Multimedia Library ... 30 day MBG
7312 **Educ. Series V. 1-Animated Relativity** 105.
★Nordic Software ... 30 day MBG
8257 **Preschool Pack - Color 2.0** 34.
7470 **Jungle Quest 30. 7537 Kolor Klips** 37.
★Penton Overseas ... 30 day MBG
VocabuLearn/ce Levels I & II (Span., Fren., Germ., Ital., Rus., Japan., & Heb.) ... ea. 35.
VocabuLearn/ce Level III (Span., Fren., Germ., Ital., Rus., & Japan.) ea. 35.



★ALSoft ... 30 day MBG
5204 **ALSoft Power Utilities 1.0.2**—Seven performance enhancing utilities for a faster, safer & smarter Mac. Features DiskExpress II for intelligent disk optimization & MasterJuggler for easy font suitcase & applications mgmt. \$62.

Our techies can talk



★Freesoft ... 30 day MBG

6115 **White Knight 11**—11 award winning communications program that supports XMODEM, YMODEM, ZMODEM, Kermit, & CompuServe Error Correcting protocols. Includes Okyto 1.0. Geared to all levels of experience \$85.

★Personal Training Sys. ... 60 day MBG

Training for System 7, Excel, Lotus 1-2-3, Persuasion, FileMaker Pro, PageMaker, Illustrator, FreeHand, Word, HyperCard, QuarkXPress, ClarisWorks & Mac ... ea. 59.

Pluma, Inc.

8695 Capitalist Pig 34.

★Que Software ... 30 day MBG

9743 **Typing Tutor V** 29.

Sierra On-Line

2412 **Rise of the Dragon** 34.

3552 **Leisure Suit Larry V or 7396 Red Baron** 39.

★SoftStream ... 30 day MBG

4489 **Galactic Frontiers** 38.

3472 **Family Cards (Solitaire, Rummy, War)** 49.

Software Toolworks

4619 **Mavis Beacon Typing 1.3 (CP)** 32.

★Spectrum Holobyte ... 30 day MBG

4835 **Tetris 1.3**.. 28. 3017 **Wordtris 1.0** . 27.

3459 **Falcon 2.2.2 or 8181 Vette 1.0** ... ea. 33.

★Strategic Studies ... 30 day MBG

3287 **Warlords (empires at war)** 34.

StudyWare

8098 **ACT, GMAT, GRE or SAT Prep** ... ea. 29.

LSAT Prep 35.

★Toyogo ... 30 day MBG

7624 **NEMESIS Go Master 5.0** 38.

7623 **NEMESIS Go Master Deluxe 5.0** 99.

Velocity

2934 **Spectre**... 34. 2934 **LAN 3-Pak**... 57.

VIDEO AND SOUND

MONITORS, MUSIC, ANIMATION

Articulate Systems

7013 **Voice Navigator SW w/Headset Mike**.. 325.

7014 **Voice Navigator SW w/Desktop Mike**.. 325.

Coda Music Systems

8188 **MusicProse**.. 189. 5604 **Finale**.. 549.

Macromedia

5486 **Sound Edit PRO 2.05** 207.

4598 **MacRecorder Sound System PRO**... 239.

5087 **MacroMind Director 3.1** 799.

2246 **MacroMind Three-D 2.0.2** 999.

NEC

4252 **MultiSync 3FGx** 659.

Passport Designs

8250 **Encore** 379.

PCTV

2244 **System 7 Video . 9. 2245 w/Lon's Book 25.**

Radius

1738 **Color Pivot LE** 899.

1736 **Precision Color Display/20S** 2899.

RasterOps

9784 **RasterOps 24SX** 649. 8944 **24STV** \$759.

8039 **Paintboard Li** 929.

7695 **24Mx**..... 1249. 7702 **24MxTV** 1799.

8392 **Sweet 16 Color Monitor** 1249.

7699 **Sweet 16 Video System** 1999.

7703 **Sweet 16 Live Video System** 2599.

Sigma Designs

6944 **Power Portrait (platinum)** 769.

Software Toolworks

5201 **The Miracle (piano teacher)** 349.

Sound Source

9972 **Star Trek: Orig. TV (AudioClips) Vol. 1** 30.

9988 **Star Trek: Orig. TV (AudioClips) Vol. 2** 30.

1759 **AudioClips 2001 w/Hal the computer** . 35.

★SuperMac Technology ... 30 day MBG

4122 **VideoSpigot LC or 4114 VideoSpigot IIsi** 369.

4164 **VideoSpigot (for NuBus)** 439.

7676 **VideoSpigot Pro. 1399. 3691 Pro si** 1299.

7679 **Spigot & Sound (NuBus)** 779.

7678 **Spigot & Sound Pro (NuBus)** 1499.

7677 **17" SuperMatch Multimode** 1149.

7675 **20" SuperMatch Multimode Trinitron** 2999.

1805 **20" SuperMatch Color Display** 1599.

5000 **20" Dual-Mode Trinitron** 2699.

4720 **21" Platinum Two-Display** 1099.

1877 **Spectrum/8LC or 2026 S/8si** ea. 439.

1844 **Spectrum/8 Series III 439. 1851/24 Series III** 889.

2330 **Spectrum/8•24 PDQ or 2231 PDQsi** ea. 899.



Hayes

5970 **OPTIMA 96 Modem for Mac**—Cost effective V.32/9600 bps standalone modem. V.42, V.42bis & MNP 5, throughput to 38,400 bps. Incl. free Smartcom for Mac software & Mac-to-modem cable. **Macworld World Class Winner!**.. \$389.
5971 **OPTIMA 24 Modem for Mac** 145.

★METATEC/Discovery Sys. ... 60 day MBG

6823 **Best of MIDI Connection** 32.

3683 **Backpac Set 1 or 3679 Set 2** ea. 45.

★Multimedia Library ... 30 day MBG

Image Series Vol. 1-4 (*Russia/China, Tropics, Parades, Ancient Egypt*) .. ea. 105.

7313 **Sound Series V.1-Music for Multimedia** 105.

NEC

6636 **Image Gallery (1400 line art)** 246.

6577 **CDR-37 CD-ROM Portable Drive** 389.

6826 **General Reference CD-ROM Bundle** 529.

6582 **CDR-74 CD-ROM Drive** 579.

Software Toolworks

3915 **Grolier Encyclopedia (CD-ROM)** 249.

COMMUNICATIONS

MODEMS, MAIL, NETWORKS

Apple Computer

7073 **Macintosh PC Exchange** 69.

7101 **AppleTalk Remote Access** 159.

7102 **AppleShare 3.0** 969.

★Applied Engineering ... 30 day MBG

8362 **QuadrLink (with AE Shadow)** 205.

★Argosy Software ... 30 day MBG

7872 **Software Bridge/Mac 2.0.1** 99.

★CE Software ... 60 day MBG

8066 **QuickMail (5 user)** 249. 8067 (10) 375.

1589 **QuickMail (50)** 1549. 3489 (100) 2899.

CD-ROM

Broderbund

3730 **Just Grandma and Me (CD-ROM)** 34.

CD Technology

2321 **CD-ROM Caddy** ... 11. 2533 (5 Pack) 49.

8057 **Porta Drive CD-ROM** 579.

Creative Multimedia Corp.

1874 **Mammals of North America** 29.

8739 **Beyond the Wall of Stars** 40.

8744 **Total Baseball 40. 2484 Family Doctor** 45.

★Cyan ... 30 day MBG

2717 **Cosmic Osmo 1.1 (CD-ROM)** 37.

★Ergonomic Software ... 30 day MBG

7056 **Panoramix Vol. 1 (CD-ROM)** 69.

★Highlighted Data ... 30 day MBG

7771 **Webster's Dictionary (CD-ROM)** 159.

6968 **Footage '91 (CD-ROM)** 159.

★HyperGlott Software ... 30 day MBG

(French, German, Italian, or Spanish)

8066 **Berlitz Think & Talk (CD-ROM)** .. ea. 125.

ICOM Simulations

3717 **Sherlock Holmes, Consulting Detective** 38.



★Berkeley Systems ... 30 day MBG

5737 **After Dark 2.0V**—1992 Macworld World Class Award for Utility-System Enhancement. Stops screen burn-in \$28.
2198 **More After Dark (M.A.D.)** 23.
2196 **After Dark & M.A.D. Bundle** 39.

FINANCIAL MANAGEMENT

M.Y.O.B. 3.0

This small-business accounting system gets even more intuitive and easier to use.

Ideally, an accounting package should embody all the esoteric rules of traditional double-entry accounting without sacrificing accessibility to users who have little or no knowledge of bookkeeping. Teleware's M.Y.O.B. comes closer to meeting those criteria than any other accounting package. Enhancements to the latest version add to the package's ease of use and versatility.

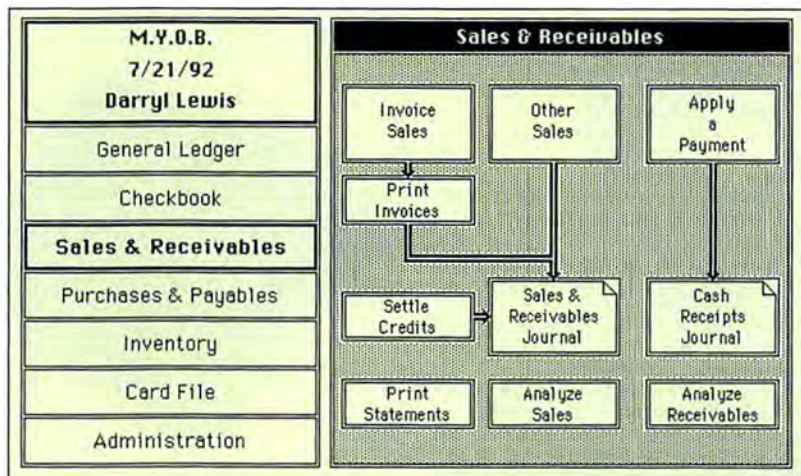
M.Y.O.B., however, can't be all things to all accountants. Because it doesn't do payroll automatically and it isn't multi-user, it's well suited only to the needs of small businesses.

Multifaceted

M.Y.O.B. integrates general ledger, accounts receivable, accounts payable, checkbook management, inventory management, job costing, and contact management. Contact management is an unusual accounting-software component, but we found it a natural, because the program's database is already set up to store customer names, addresses, and phone numbers. M.Y.O.B. even dials phone numbers through a modem and keeps track of sales contacts.

M.Y.O.B. has always been a paradigm for ease of use in an accounting package, but with version 3.0, Teleware has added even more convenient features. To make M.Y.O.B. easier to set up for users who want to import data from spreadsheet, database, and other programs, Teleware has added the ability to import charts of accounts (with opening balances), customers, vendors, employees, and personal contacts in tab- and comma-delimited files. M.Y.O.B.'s ability to import sales, purchases, and general journal transactions is unique among inexpensive accounting programs.

Another new feature comes in handy when you're writing checks, making deposits, and applying or making payments: Version 3.0 calculates the total amount



M.Y.O.B.'s command-center interface makes it easy to navigate among the accounting package's modules. Ideal for small businesses, M.Y.O.B.'s latest version is even more intuitive than its predecessor.

automatically when you fill in individual items and amounts. This feature eliminates math errors and unbalanced transactions.

Version 3.0 supports two wildcard characters for more-powerful search capabilities — you can use a question mark to represent an unspecified character and an asterisk to represent a string of unspecified characters. The wildcard feature gives you control over which customers, vendors, items, or employees are included or excluded from reports.

Additional enhancements to the program's reporting abilities include new report types. You can create summary and detail sales reports by salesperson, by sales tax collected, and by receivables or payables due for a particular date. Version 3.0 can also produce comparative reports for any number of periods you specify. The reports can include balance sheets, profit-and-loss statements, customer dollar sales, salesperson dollar sales, item dollar sales, item quantity sales, and item cost of sales.

In Good Form

Last but not least, version 3.0 sports more-flexible forms options. For printing, you can choose the type of invoice — item, service, packing slip, or shipping label — you want to print. M.Y.O.B. has always let you customize invoices, purchase orders, and checks, but version 3.0 applies this flexibility to packing slips and shipping labels as well. In addition, the program can print back-order invoices and purchase orders.

Old Standbys

M.Y.O.B. is rich with features, but the key to its appeal is its disarmingly simple interface. Its home screen operates much like the System 6 Control Panel. Buttons represent the program's seven main command centers: General Ledger, Checkbook, Sales & Receivables, Purchases & Payables, Inventory, Card File, and Administration. When you click on a command center, M.Y.O.B. displays all of its functions in flowchart format.

The Bottom Line

With version 3.0, Teleware has enhanced M.Y.O.B.'s flexibility and ease of use. The program eliminates much of the pain and agony of keeping your books up-to-date, but you still need to understand the basic principles of double-entry accounting to set up and use the program properly. Still, if you run a small business and don't require payroll or multiuser capabilities, M.Y.O.B. should be at the top of your purchase-order list.

— Darryl Lewis

Get Info

M.Y.O.B. 3.0

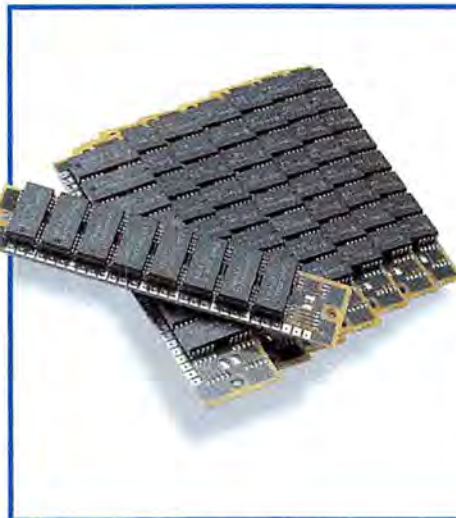
Published by: Teleware, Inc.,
300 Roundhill Drive, Rockaway,
NJ 07866; 201-586-2200.

Version: 3.0.

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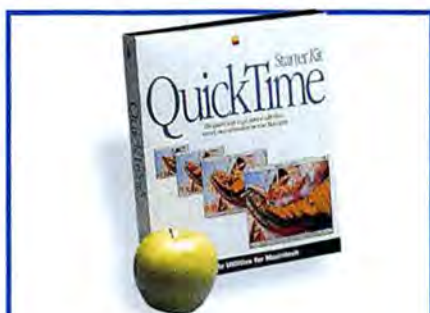
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Recently I purchased four 1 MB SIMMs to upgrade my SE/30 from 5 to 8 MB of RAM. You are to be commended on your clear and concise instructions. The booklet *SIMM Installation for the Macintosh* is very good, but the instructional video *SIMM Installation: The Inside Story* is excellent. It provided

crucial tips not found in the written literature (e.g., techniques for the removal of the power cord, things to do to avoid bumping the video card, etc.). Thank you for taking the time to prepare instructions for a simple process that could become a nightmare without the proper guidance.

Sincerely,

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Just for the record, all the ads in this series feature real live MacConnection customers and the real live letters they wrote us. Really!

Personal Press 2.0

With its newly added smarts, Personal Press makes page layout even easier.

In a world with self-cleaning ovens, seat belts that automatically strap you in, and toothbrushes that inform you when to replace them, it shouldn't come as a shock to find a desktop-publishing program that lays out an entire publication for you. Enhancements to the latest version of Personal Press, which include automatic copy fitting, System 7 smarts, and a host of automated commands called Aldus Additions, make page layout even closer to automatic. We did, however, find the new version a bit rough around the edges.

Expert Advice

Personal Press' AutoCreate feature is even smarter in version 2.0 than it used to be. As in the previous version, when you open an AutoCreate template, you can select text and graphic boxes on the preview screen and indicate which stories and artwork you want to place in them. Personal Press then retrieves your source files and formats them accordingly. The key AutoCreate enhancement in version 2.0 is the addition of a kind of DTP expert system that closely tracks the information requirements of your document. If you're using one of the program's 53 templates, for example, Personal Press prompts you for cleanup details as it compiles your publication. It

remembers things you might forget, such as captions, pull quotes, "continued from" lines, date, and volume number. (Alas, if you modify the template or use your own, Personal Press loses this extra level of intelligence.) Once you've answered all its questions, Personal Press delivers a fully formatted newsletter that's ready to print.

At this point, you can make modifications and the program will behave like a conventional page-layout program. In fact, you don't have to use AutoCreate templates at all — as a stand-alone page-layout program, Personal Press is quite serviceable.

Other conveniences of the new version include the ability to enter text at any magnification, a forced-justification option, and the ability to add additional pages automatically to accommodate long stories. Also new is automatic copy fitting. If you have a story that doesn't quite fill the space you've laid out for it, you can click on the Filled-Text box and select Copy Fit from the Text menu and Personal Press will adjust character size as well as line and paragraph spacing to make the story fit the allotted space.

Version 2.0 includes a Personal Press-specific version of Aldus Additions. Accessed through their own palette, Additions are automated commands that add

a variety of functions. Many serve as handy shortcuts for menu items; others, such as Bullets and Drop Caps, are unique to the Additions palette. Despite the similarity in their names, Additions designed for PageMaker cannot be used by Personal Press and vice versa.

You still can't open more than one document at a time in Personal Press, and you can't group objects. In

addition, some of the new Additions suffer from molasses-in-January syndrome: Captioning a graphic with an Aldus Addition took 45 seconds, after a 60-second wait to prepare the dialog box. Not all Additions are so slow, and even the graphic-captioning Addition isn't slow all the time, which leads us to conclude that perhaps the program's occasional sluggishness is more a symptom of quirky software than an inherent problem with Additions.

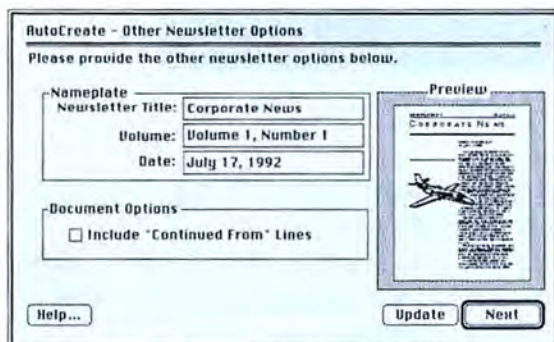
Other problems lend credence to our theory. Personal Press crashed several times when we tried to use a modified AutoCreate template, and the cursor occasionally froze as we were using some Additions. Moreover, screen redraws sometimes came out dirty — with stray black streaks — when we modified text characteristics. The program's size is also problematic. For a low-end program, Personal Press was weighty enough in its first iteration — 780K — but version 2.0 requires 1,500K of RAM.

Version 2.0 supports System 7 features, including Balloon Help, subscribe (but not publish), TrueType, and virtual memory. You can place QuickTime movies in Personal Press documents, but the playback controls are sparse.

The Bottom Line

As a low-end entrant in the page-layout market, Personal Press lacks customizable H&J tables, high-end color handling, and professional-level kerning and tracking controls. For novice users who don't require such sophisticated features, however, Personal Press' central innovation — an intelligent AutoCreate template — offers an exciting prospect. The only drawbacks to this smart page-layout program are the annoying bugs that crop up here and there — we hope to see them squelched in the next upgrade.

— Shelley Cryan



Personal Press, Aldus' entry-level page-layout program, gets even smarter with version 2.0. The enhanced AutoCreate feature prompts you to add the details you need to complete your document.

Get Info

Personal Press 2.0

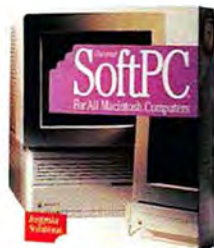
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OCR

OmniPage Direct and ScanJet IIp

Caere's OmniPage Direct teamed with HP's budget scanner takes OCR mainstream.

If you thought OCR was too complicated or time-consuming to justify the required hardware and software investment, think again. Caere and Hewlett-Packard have pooled their considerable talents to come up with an ideal OCR package. Caere's new OmniPage Direct software teamed with HP's aggressively priced ScanJet IIp gray-scale scanner offers users a level of ease of use and convenience never before available for OCR. You can scan text directly into your target applications with OmniPage Direct, and to make the process even smoother, you can fine-tune HP's scanner so that text recognition is practically automatic.

OmniPage Direct

As its moniker implies, OmniPage Direct is designed to be used directly from within an application without opening a separate OCR program. Once installed, it appears as an Apple-menu item. To scan text into a word-processing or page-layout document, you simply open the document, locate the insertion point to specify where you want the text placed,

choose Direct from the Apple menu, and let it rip. The Direct software temporarily takes over from the underlying application, scans and recognizes the text, copies it to the Clipboard, returns to the application, and places the text into the open document.

As promised, Direct makes OCR quicker and easier than ever before. Moreover, it can automatically detect landscape or portrait orientation as well as spot dot-matrix text. Coupled with the HP ScanJet IIp, it makes use of HP's AccuPage technology to automatically adjust the contrast and brightness level for OCR on every region of a page, so you get impressive text-recognition results even with documents that pair tinted and white backgrounds on the same page. Interestingly, because AccuPage is actually a set of routines that HP has licensed to Caere, the technology resides in the Direct OCR software, not in the scanner.

In addition to the ScanJet IIp, OmniPage Direct works with a wide variety of other scanners, including those from Microtek, Abaton, and Apple. For those makes of scanners, Caere relies on its

own technology, dubbed AnyPage, to set brightness levels automatically on different page areas.

To quantify the speed you gain by using Direct versus a separate, full-blown OCR package is difficult, because in addition to recognition performance, you must also figure in the time you save by eliminating the process of converting or importing text into the target application. We found that there was little difference in the recognition speed of Direct as compared with its full-featured sibling, OmniPage Professional. Overall, the process definitely took less time with Direct and was significantly more convenient.

According to Caere, Direct is destined to replace OmniPage 3.0, the company's entry-level product. Compared with OmniPage Professional, Direct lacks only these features: a spelling checker, deferred scanning, a graphics editor, and the ability to learn new characters or symbols. These omissions are fairly insignificant, however, when you consider that using the spelling checker of the word processor or desktop-publishing program you're scanning text into is often easier than using the OCR spelling checker anyway. Moreover, for image scanning, the ScanJet IIp supplies a quite serviceable graphics-scanning and -editing program.

HP includes a trial version of OmniPage Direct with the ScanJet IIp. The trial version comes with reduced documentation, works 20 times, and then dies. After that, you can resuscitate it by calling a toll-free number and paying \$300. If you don't purchase the scanner, you face a list price of \$595 for Direct. Clearly, the ScanJet IIp/Direct combination is the way to go for everyday, low-end OCR.

Direct requires at least a Mac II-class machine, 4 megabytes of RAM, and System 7. It should work with any application that supports the Command-V shortcut for Paste (that's just about every one). In many applications, Direct can preserve font and style information.

HP ScanJet IIp

Preeminent among the ScanJet IIp's features is its low list price: \$1,095. That's not bad for a 300-dpi, 256-level gray-scale flatbed scanner that includes both image-scanning and -editing software.

Physically, the scanner resembles a more compact version of HP's venerable



The HP ScanJet IIp teamed with new OCR software from Caere offers the most affordable and easy-to-use OCR solution you can buy. The 300-dpi, 256-level gray-scale flatbed scanner bundles image-scanning and -editing software at a price of \$1,095. Caere's OmniPage Direct OCR software is available for \$300 if you purchase the scanner.

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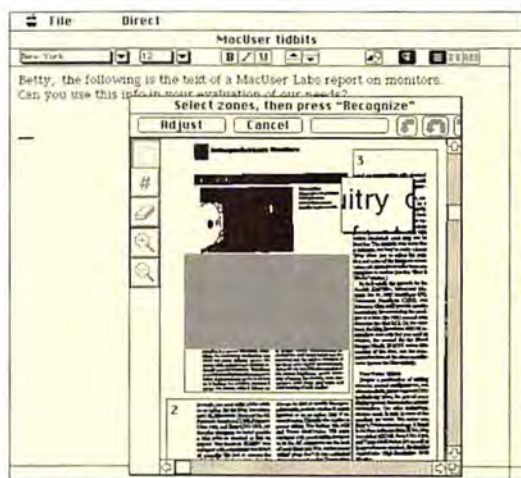
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The beauty of the OmniPage Direct OCR software is that it lets you scan text directly into your document. Another plus is Direct's support for HP's AccuPage technology, which automatically adjusts the brightness of individual page areas, such as sidebars with color backgrounds.

ScanJet Plus, which it's destined to replace. The IIP seems as solid as its predecessor, with one exception — its flimsy cover, which kept snapping off.

Unlike the ScanJet Plus, the ScanJet IIP doesn't require an interface box. Installation is a snap, and the scanner's appetite for system resources is modest — 2 megabytes of RAM, a hard disk, and System 6.0.5 or later. The bundled DeskScan II software is also straightforward. The scan quality is generally excellent, especially when you use HP's auto-exposure feature for optimizing brightness and contrast.

The DeskScan software lets you calibrate the scanner to your individual printer. To do so, you first generate a special test page, print it, and then scan it. DeskScan compares what the test page is supposed to look like with the printed version and calibrates the scan settings accordingly. Unfortunately, this advanced feature is severely undercut by the scanner's poor documentation, which refers you to on-line help for a more complete explanation. However, the on-line explanation is incomplete and scattered over several nonsequential screens.

In addition, the image-scanning software bundled with the IIP, Zedcor's DeskPaint, is completely undocumented. Currently, DeskPaint is one of the few applications that supports the TWAIN specification, which lets you acquire text or images from one application directly into another. DeskPaint's TWAIN support lets you scan images directly from within the application without first having to save them as separate files. By early next year, many other applications, including Aldus PageMaker, are expected

to support TWAIN as well.

All in all, aside from its poor documentation and misbehaving cover, the ScanJet IIP gives you a lot of scanner for the price. An optional sheet feeder is available for \$395.

The Bottom Line

The combined package of OmniPage Direct and the HP ScanJet IIP offers an extremely affordable and convenient way to take the OCR plunge. By teaming impressively easy-to-use and accurate OCR software with an excellent gray-scale scanner, HP and Caere may have come up with the right formula for making OCR mainstream.

— Dave Valiulis

Get Info

HP ScanJet IIP

★★★★

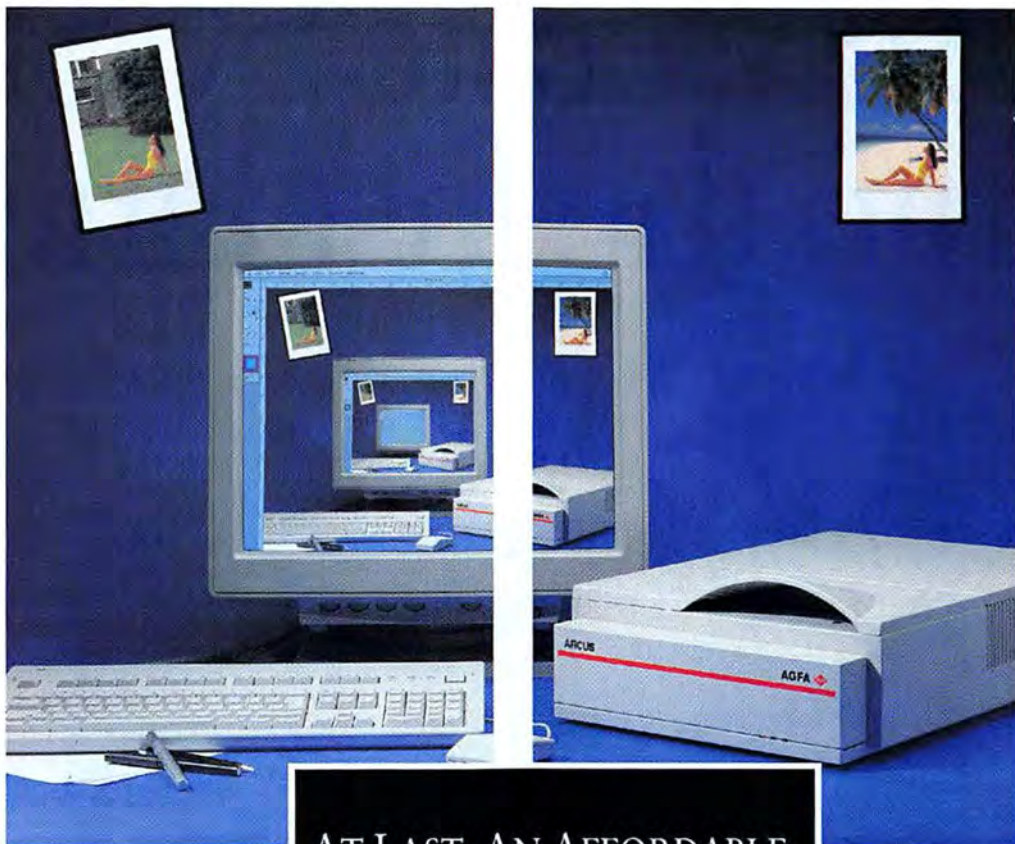
Manufactured by: Hewlett-Packard, P.O. Box 58059, MS-511L, Santa Clara, CA 95051; 800-752-0900 or 408-725-8900.
List Price: \$1,095; sheet feeder, \$395.

OmniPage Direct

★★★★½

Published by: Caere Corp., 100 Cooper Court, Los Gatos, CA 95030; 408-395-7000.

Version: 1.0.
List Price: \$595 (\$300 when purchased with the HP ScanJet IIP or Apple OneScanner).



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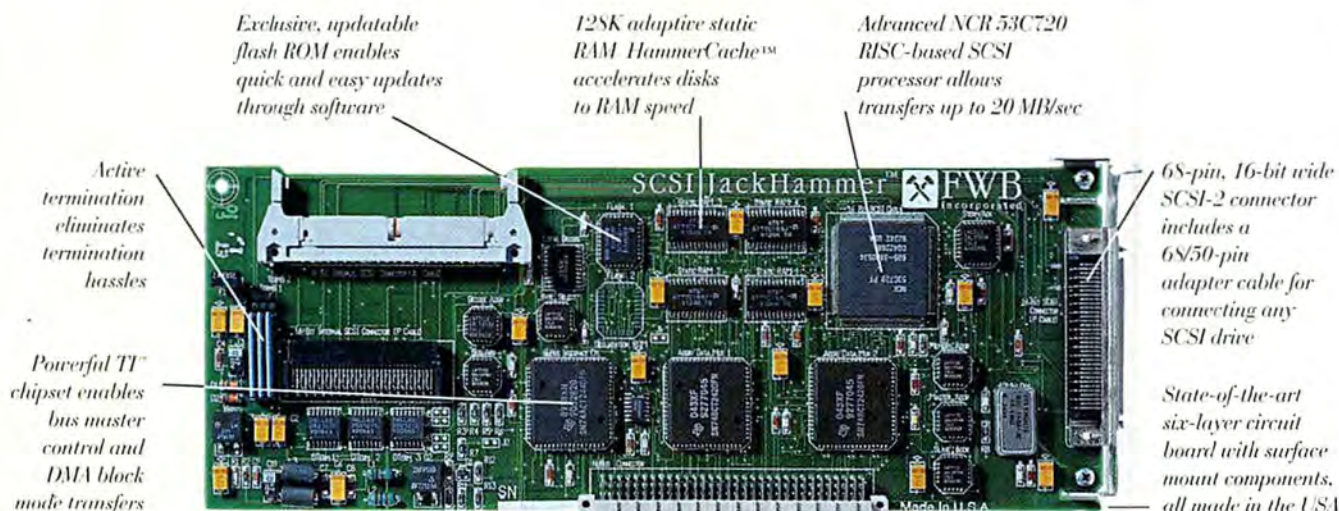
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UTILITIES

JAG and Smoothie

These two anti-aliasing utilities render on-screen images crisp and clear.

Two anti-aliasing utilities promise to improve your image — your on-screen image, that is — for graphics, Mac-based presentations, and animations. Ray Dream's JAG is a bare-bones utility that targets bit-mapped images and animation files. Pierce Software's Smoothie is a more fully featured application that smooths vector and PostScript images and throws in a slide-show feature to boot.

JAG

JAG (short for *Jaggies Are Gone*) is currently the only utility that can anti-alias bit-mapped images and animations. Using JAG is a snap. You simply open a PICT or PICS file from within the program and choose the Anti-alias menu command, and JAG goes quickly about its work. Within seconds (on a Quadra), you have a smoother image.

JAG can also work with vector and PostScript images that have been converted to PICT images, although it's not as good as Smoothie at improving these file types.

In production environments, you can set JAG up to batch-process images. A convenient dialog box lets you load PICT or PICS files from any volume for unattended anti-aliasing. JAG's Batch Queue window keeps you informed as to which files have been processed and which are still waiting in line. The program displays the time that each file was loaded and completed. Especially handy for smoothing large PICS animations is JAG's ability to go about its business in the background.

When JAG has taken the edges off your images, you have several file-saving options, including 8-bit (system or adaptive palette) or 24-bit color; dithered; and NTSC legal values, which are useful for images destined for videotape. JAG produces excellent 8-bit dithered images from 24-bit-color bit maps, thereby reducing the original file size by as much as a third.

JAG's preferences let you control the

anti-aliasing process. For example, you can exclude pixel-thin lines and lone points from the process, and you can adjust the threshold value. By lowering this value, you get smoother results.

Although Ray Dream strongly recommends that you leave the threshold value at 32, don't feel that you have to take the warning seriously — we got good results by fiddling with the number. You should, however, stay away from extreme values — they can definitely cause undesirable results.

JAG is an especially useful tool for 3-D animation, because it allows you to turn off anti-aliasing in 3-D packages such as StrataVision 3d or Infini-D, thereby significantly reducing rendering time. Once images have been rendered, JAG can take over and smooth them.



JAG is the only anti-aliasing utility that works with bit maps created with painting programs and animation files. However, vector and PostScript images processed by JAG (top) can't match the quality of images processed by the more fully featured Smoothie (bottom).

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Smoothie's Settings dialog box provides a slew of options for handling anti-aliased images, including a compression option that can shrink bit maps to a tenth of their original size without compromising image quality.

Smoothie

Smoothie's forte is creating anti-aliased screen bit maps from PICT files that began life as vector or PostScript images. That makes Smoothie ideal for handling graphics created with drawing programs, but it can't handle bit maps created in painting programs, as can JAG. Most vector-based drawing programs, including Canvas and MacDraw Pro, can export files in PICT format or as PICT editions with publish-and-subscribe. Smoothie can even improve images created with presentation packages such as Persuasion and PowerPoint.

Smoothie works its magic on-screen in much the same way that PostScript improves print quality. It rasterizes PICT images at double their resolution and then samples them back to the desired output size. As a result, your screen image looks LaserWriter-smooth rather than ImageWriter-jagged.

Unlike JAG, Smoothie is more than a simple utility. It's a System 7 application that supports publish-and-subscribe, Apple's new QuickTime extension, and a slide-show feature that lets you give presentations from directly within the program.

After processing images (Smoothie also supports batch processing), the program can output files in one of three formats: Scrapbook, QuickTime movie, or Smoothie Slideshow. Smoothie Slideshow is a double-clickable application that can run through a series of slides automatically or allow you to control slide display with the mouse.

Although Slideshow lacks special effects such as transitions, it provides top-notch, crisp images for both on-screen text and graphics. We noticed a distinct improvement (especially in type quality)

even with slides created with powerful presentation programs. For future releases, Pierce Software is working on a slide editor that will let you organize your slides after they've been anti-aliased.

Smoothie's QuickTime support provides other benefits for the Slideshow application. The QuickTime extension comes with several built-in compressors (including JPEG) that Smoothie can take advantage of. The compressors can shrink bit-mapped images to a tenth of their original size without sacrificing the overall image quality.

The Bottom Line

Although Adobe Photoshop filters and plug-ins provide similar image-enhancement capabilities to those offered by JAG and Smoothie, at \$99.95 and \$149, respectively, JAG and Smoothie will have comparatively greater appeal to the budget-conscious. Each can improve the quality of on-screen images, although their strengths differ, depending on how you use them.

If you use a drawing program or frequently prepare slides for on-screen presentations, you can get absolutely the best image quality with Smoothie. JAG, on the other hand, is your best choice for animation files (especially the 3-D variety) as well as for graphics created with low-end painting programs that lack good anti-aliasing tools (a vanishing breed, we've noticed).

— Sean Safreed

Get Info

JAG

\$\$\$ 1/2

Published by: Ray Dream, Inc.,
1804 N. Shoreline Blvd.,
Mountain View, CA 94043;
415-960-0766.
Version: 1.0.4.
List Price: \$99.95.

Smoothie

\$\$\$

Published by: Michael Pierce
Software, 719 Hibiscus Place,
Suite 301, San Jose, CA
95117; 408-244-6554.
Version: 1.02.
List Price: \$149.

ANIMATION

PROMotion

Motion Works' animation program teams simple tools and powerful interactive features.

Animation tools for the Mac used to be hard to come by, but now there's such a variety that the hard part is choosing among them. The latest entry in the field is PROMotion. Unlike its predecessor, AddMotion, PROMotion is not a HyperCard application. With its ease of use for controlling animation elements as well as for creating interactive animations, PROMotion is a good choice for novices. Sophisticated users won't be disappointed, though — PROMotion has some unusual tricks up its sleeve that you won't find in other Mac animation programs.

Path-Based Animation

PROMotion is a path-based animation package that includes a basic painting program, sound-recording tools, and options for programming interactive animations. A CD-ROM of sample animation files, actors, and props is bundled with the package.

Actors and props are PROMotion's basic animation components. Props are static PICT backgrounds, and actors are imported PICS animations (missing is the ability to import QuickTime movies) or objects created with PROMotion's painting tools. You place actors along paths to determine their on-screen movement. To create paths, you place points on the screen and the program automatically connects them; to edit paths, you can reverse their direction, automatically smooth them, and add or delete points.

One frustrating omission is the ability to redistribute points along a path to build acceleration and deceleration into an animation — a feature included in most path-based animation programs. However, PROMotion does include an onion-skin feature, which lets you see the previous or next frame with respect to the current frame — an important aid for cel animators. The program can also generate in-between frames for rotations, resizes, and color fades.

PROMotion's solid set of sound tools, which directly support the MacRecorder digitizer and the built-in recorders of sound-capable Macs, lets you edit sounds and create a variety of effects.

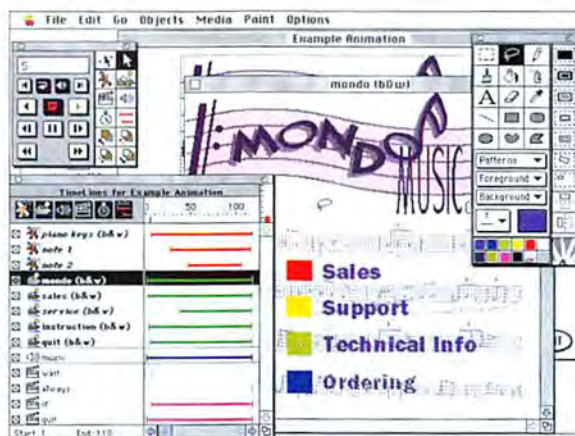
As you create and import elements for your animation, you can choose from several methods for controlling their behavior. The TimeLine selectively displays each element of an animation file plotted over time. By selecting and dragging indicator bars for each actor, you can shorten or lengthen the amount of time the actor appears in the animation. The TimeLine, with its indicator bars, provides a good overview of the interaction and timing of all animation elements. The Cel Sequencer lets you rearrange the order of playback of the cels that make up an actor, independent of the actor's placement on the TimeLine. Overall, PROMotion gives you excellent control over each component of an animation file.

Another strength is PROMotion's straightforward interface for creating interactivity. It's one of the best we've seen. For those who've been perplexed by scripting languages such as Lingo

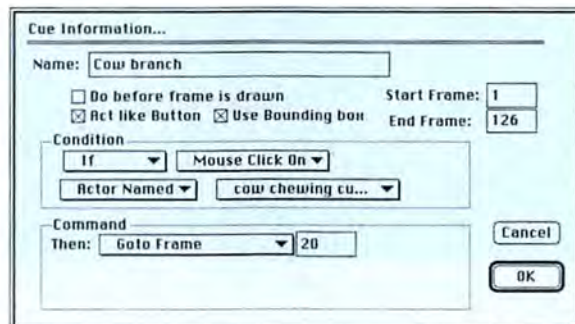
(the native Macromedia Director programming language), PROMotion offers a much simpler alternative. To specify a response to a condition, you simply select the appropriate option from a pop-up menu. For example, in response to a click on any actor or prop, you can opt to have the animation branch to another frame; send a message to HyperCard, Control Tower, or Frontier; pause; load another animation; or change the frame rate. By sending messages to Frontier and Control Tower, you can have your animation control several external programs and devices. To do so, however, you must be proficient in programming within those scripting environments.

PROMotion is the first animation program out of the gate to support Apple events. In addition to sending Apple events to Frontier, PROMotion can also receive events from external sources, making it an ideal tool for users interested in triggering animated sequences as part of a larger multimedia presentation. PROMotion responds to the core Apple events as well as to several events specific to the program.

For output, PROMotion's Print-to-



PROMotion is the latest entry in the burgeoning animation-software arena. It combines basic painting tools (right) with excellent controls for creating path-based animations (left).



One of PROMotion's strongest features is the simplicity of its interface for creating interactive animations.

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Video command dumps an animation, frame by frame, to videotape. Supported communications protocols include Control-L, Control-S, and ViSCA. Of course, you also need the appropriate hardware (such as an ARTI controller or Sony VBox ViSCA interface) to control the video deck. In addition, PROMotion supports output to PICS and QuickTime formats, and you can even save animations as After Dark modules or as stand-alone animation files that don't require an external player.

Despite PROMotion's strengths in interactivity programming and animation control, we encountered several weaknesses. The method for selecting colors is awkward, and PROMotion's painting tools aren't a suitable substitute for a painting program (even an inexpensive one). We also discovered that many painting commands can't be undone — for example, if you tint an image and decide you want to change it, you're out of luck.

The documentation is another disappointment. Although it does a fairly good job of explaining basic concepts, it suffers from a weak index. File, Format, and Save, for example, are missing altogether. Moreover, a four-page listing details supported Apple events, but no examples of the code that takes advantage of this feature are included.

The Bottom Line

PROMotion is a solid animation tool that features an excellent interface for creating interactive animations and controlling animation elements. Although the program suffers from some rough edges, in general, the tools work well. Novice users will find it a useful and fun program, and veteran multimedia mavens might want to check out the program's Apple-events support for creating complex presentations.

— David Biedny

Get Info

PROMotion

\$\$\$½

Published by: Motion Works International, Inc., 1020 Mainland Street, Suite #130, Vancouver, BC V6B 2T4, Canada; 604-685-9975.

Version: 1.0.

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Gold**
|||||

Global Village Communication has just made communicating from your PowerBook even easier, with the release of two new high-speed internal fax modems. The company's previous PowerBook modem, the PowerPort V.32, performed well but required a dongle, an external device for connecting a modem to the phone line. If you left on a trip without your dongle or misplaced it, you couldn't use the modem. Global Village's new PowerPort/Silver and PowerPort/Gold modems are both completely internal (as is the PowerPort/Bronze — the Gold and Silver models' lower-speed sibling), so you can plug a phone line directly in to the PowerBook, plus the PowerPort/Gold gives you extra speed.

The PowerPort/Silver is functionally identical to the PowerPort V.32. It's capable of 9,600-bps raw-data throughput, using the V.32 high-speed-modem communications standard. It also supports V.42 and MNP Class 4 error-correction protocols as well as the V.42bis and MNP Class 5 data-compression protocols. The PowerPort/Silver uses V.29 Group 3 fax, the fax protocol used by virtually every fax machine in the world for sending and receiving; V.29 allows fax throughput as high as 9,600 bps.

The PowerPort/Gold does everything the PowerPort/Silver does, but it has faster communications rates. The additional speed comes from support for the V.32bis standard, which allows raw-data throughput as high as 14.4 Kbps.

These speeds make both modems well suited for use with AppleTalk Remote Access (ARA); 9,600 bps is the lowest modem speed that makes ARA usable, and 14.4 Kbps comes close to feeling like LocalTalk. Each modem works flawlessly with ARA if the phone lines are of decent quality, and each also works well with E-mail and on-line services.

The PowerPort control panel that comes with each modem lets you set preferences such as the modem's speaker volume and whether you want the

PowerPort to be able to receive faxes. The latter preference, when used with the PowerBook's "Wake Up on Modem Ring" feature, lets you use your PowerBook as an unattended fax receiver — just plug it in to a phone line.

Sending a fax with either modem is easy: Hold down the Option key while selecting the File menu in any application; the Print-menu option then changes to Fax so you can fax the document.

For fax management, the Fax Center DA lets you edit an address book of fax numbers, view received faxes or those to be sent, schedule faxes, and perform other standard functions. You can also defer fax transmission to send faxes when it's most convenient for you.

Anyone who needs high-speed modem connections from their PowerBook will be well served by either of these modems. If you need the highest possible bandwidth, take advantage of the PowerPort/Gold's 50-percent-greater throughput; otherwise, you can choose the more economical PowerPort/Silver.

Global Village Communication, Inc., 685 E. Middlefield Road, Building B, Mountain View, CA 94043; 800-736-4821 or 415-390-8200. PowerPort/Silver, \$595; PowerPort/Gold, \$795.

— Stephan Somogyi



**Spelunx and
the Caves of
Mr. Seudo**
|||||

If you've never played Yodel Toasters or climbed a Pigtoad tree, it's high time you tried Spelunx and the Caves of Mr. Seudo, a Brøderbund release for — yes, it's true — kids of all ages.

Spelunx is the latest production from the Cyan team of Robyn and Rand Miller, who created The Manhole and Cosmic Osmo. Like their earlier efforts, Spelunx is not a game but rather a "noncompetitive exploration environment." There are no points to score, no levels to attain, and no ways to "die." The whole idea is to explore and to learn along the way.

Kids can play with Spelunx and not realize they're learning about biology, astronomy, music, chemistry, and so forth, because they're busy having fun. They can mutate wacky trees by splicing genes with the Tree Gene-orator, for example, or they can use Cartesian coordinates to find planets with the P. Seudo

Scope and make them spin.

All these activities occur in Prof. Alexander Spelunx's caverns, a set of rooms and tunnels filled with references to famous children's books as well as to more-obscure items (would you believe a *MacWEEK* mug?). You can click on virtually everything in the caves, with highly unpredictable results.

Like previous Cyan productions, Spelunx is HyperCard-based but with a welcome new twist: MacroMind Director files are integrated within the stack. By combining black-and-white HyperCard graphics with colorful Director inserts, the Millers have created an unusual look and kept the space requirements for the program relatively modest: Spelunx fits on five 800K disks, rather than requiring a CD-ROM. And because the color portions are limited, you can still run Spelunx effectively on a Mac with a black-and-white monitor.

Although the program's resource needs are carefully contained, its entertainment capabilities are boundless. There's even a secret room with an ingenious entrance that lets you keep modifying the caves with new tunnels and rooms of your own — making Spelunx a game that grows but doesn't grow old.

Brøderbund Software, 500 Redwood Blvd., Novato, CA 94948; 800-521-6263 or 415-382-4400. \$49.95.

— Ken Gruberman



**Z-Nix Cordless
Super Mouse**
||||| 1/2

Remote-control pointing devices have always worked better in theory than in practice: Sure, they free you from getting tangled in a cord, but you have to keep changing the batteries. Z-Nix's new infrared Cordless Super Mouse is different — it's rechargeable.

The Super Mouse comes in two pieces: the mouse, which transmits the signal, and the base, which doubles as a receiver and a recharger. The mouse has rounded edges and fits easily in your hand. The leftmost of its two buttons has a recessed resting place for a right-hander's index finger — leaving lefties out in the cold. Even so, this design is good, because it helps to avoid an accidental click of the second button (an important consideration if you want to assign a special key sequence to that button).

An LED on the front of the mouse transmits movement and clicks to the base receiver, which hooks up to your Mac's ADB port with a 6-foot cord. The recharger gets its power from the ADB port, which means that the Mac must be on to recharge the NiCad batteries. A second battery fits into a charging terminal on the bottom of the base, so you can keep a fully charged spare handy.

Z-Nix's MousEnhancer software is uninspired but has the minimum necessary features. It lets you adjust mouse tracking (the distance the mouse travels across the pad to move the cursor across the screen) and double-clicking speed (the time within which two clicks will launch a document in the Finder). It also lets you define a click of the second button to represent an action other than that produced by a normal click (for example, it can represent a double-click or a keyboard command equivalent).

Although it doesn't have the most sophisticated software available, the Super Mouse fits the bill nicely for presentations. You can use it from a distance (Z-Nix says 6 feet, but we had a decent response at 16 feet) and pass it around a table, plus you don't have to worry about your batteries dying. Despite its bias against left-handed users, the Super Mouse is the best choice among the remote mice available for the Mac.

Z-Nix Co., Inc., 211 Erie Street, Pomona, CA 91768; 714-629-8050. \$99.

— Ben Templin



Transparent Language



Transparent Language is a program that polyglot wannabes everywhere should celebrate. If you're a foreign traveler, an international businessperson, or a beginning language student bored with memorization and drills or if you just want to read a language you used to know, this program is for you. Newly available in Mac format, Transparent Language offers stories and poems in German, French, Spanish, and Latin and makes it easy for you to read them.

The program comes on a single 800K floppy that includes three stories in the language of your choice. There's also a voice tape cassette, to help you with pronunciation, and a brief users' guide.

To use the program, you double-click

on a story icon contained in one of the language folders. To the right and across the bottom of the text window appear five optional-view windows called Comments, Word Meaning, Phrase Meaning, Notes, and Sentence or Clause Meaning. As you select any item in the text, detailed information appears in these windows to help you understand the selection as well as the grammatical context that interests you.

By scrolling, tabbing, or using the arrow keys to move through the text, you read at your own speed, clicking on words you want to understand and scanning the optional windows for information. When you stop reading, use the Set Bookmark feature to mark your place. Find Bookmark returns you to that place, with the windows configured as you left them.

The program comes with a catalog of moderately priced titles and listening tapes. Titles are still too few in number — about ten per language — and mostly consist of classic short stories and fables, with some poetry and contemporary work. At press time, however, the company was busy translating longer works, customizing language-learning approaches for businesses, making current magazine articles available by subscription, and developing practical English texts for Spanish speakers in ESL (English as a second language) programs.

By giving users an easy way to read interesting foreign-language works at their own pace, Transparent Language has revolutionized computer-based language learning. With the company's ambitious plans to expand its titles, Transparent Language may revolutionize foreign-language literacy rates as well.

Transparent Language, Inc., 9 Ash Street, P.O. Box 575, Hollis, NH 03049; 800-752-1767 or 603-465-2230. French, German, or Spanish package, \$139 each; Latin, \$129.

— Marilyn Bancel



Prince of Persia



If your collection of Errol Flynn videotapes is wearing thin, it's time to get more interactive in your swashbuckling. Prince of Persia is a challenging arcade game with extraordinarily realistic animation from a programmer who studied reels of Hollywood sword fights to put

you at the helm of the sword.

As the prince, you must rescue the sultan's imprisoned daughter by traversing the dangerous corridors of a dozen dungeon levels — fighting guards, grabbing magical objects, jumping over spikes, leaping across chasms, climbing ledges, drinking potions, crawling under gates, and hanging by your fingertips.

You start the game with a fixed number of strength units. Every time you get hurt — by falling, being stabbed, and so on — you lose one unit of strength or, in some cases, are killed outright. When your strength disappears, you die. You have an unlimited number of lives, and you're reborn on the same level on which you died. Because figuring out how to advance to the next level can take several real-time hours, the program's ability to save games in progress so that you can pick up where you left off is helpful.

You control your movements, using specific keys on the keyboard. You can't customize which keys do what, but the setup you're given is logical. Getting accustomed to the controls takes time but eventually rewards the effort (although your on-screen persona doesn't always respond instantly). Using a joystick would be easier, but that option is currently available only for the IBM and Tandy versions of the game. (By the time you read this, however, Advanced Gravis should have released the Mouse-Stick II joystick, which the company claims can be used even with games designed for keyboard control only.)

Prince of Persia runs in monochrome or 8-bit color and requires at least a Mac Plus with 2 megabytes of memory (more under System 7). It also requires a hard drive with roughly 1 megabyte of free space. The disk isn't copy-protected, but you must look up a specific character in the manual before you start.

The game is challenging to mind and body. Winning requires marathon sessions of dedicated play, keen hand/eye coordination, and the willingness to take leaps of faith — literally.

Although you can try to improve your score, it's doubtful you'll want to play Prince of Persia again after rescuing the princess. Nonetheless, by that time, you'll certainly have gotten your money's worth plus a great deal of entertainment.

Brøderbund Software, 500 Redwood Blvd., Novato, CA 94948; 800-521-6263 or 415-382-4400. Version 1.0. \$49.95.

— Owen W. Linzmayer

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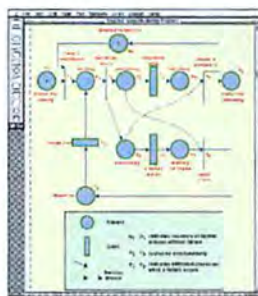
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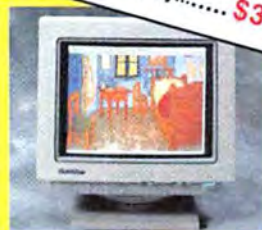
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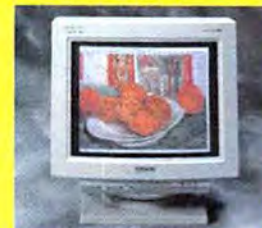
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BUYER'S GUIDE

MacUser

Tools for DTP



At the dawn of the desktop-publishing era, your choice of tools was simple: a Mac Plus, a 20-megabyte hard drive, PageMaker 1.0, and a LaserWriter Plus. Today, the tools available to do the work have necessarily increased in number as well as in complexity.

In this month's DTP Buyer's Guide, we've gathered comparative reports on complicated, feature-rich software (drawing programs) and on essential hardware tools (slide scanners). The world of page layout is represented by our first-ever roundup of 65 QuarkXPress extension programs. We've also included a special Graphics and Design edition of our MiniFinders directory — featuring thumbnail reviews and ratings of more than 160 products. And to get things started, we've included a comprehensive overview of the latest and greatest products for desktop publishing. It's got everything you need to make the smart choices for your own DTP tools.



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The End

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Desktop Publishing: The State

Do you have the right
tools for the job?

Here's an

up-to-the-minute

look at products and

technologies at the

leading edge of the

DTP revolution.

BY AILEEN ABERNATHY



Desktop publishing, circa 1992, is a robust, rapidly maturing industry. True, we're still waiting for refinements in color management and trapping, but for most users, the tools and quality are right here, right now. The question is no longer, Is it available? but Which one should I buy? To help you make the right decisions, here's a quick overview of the state of the art. (For further information on DTP products, see MiniFinders in this Buyer's Guide.)

Page Design

The first question most budding desktop publishers ask is, Which page-layout program should I buy? If you automatically answered PageMaker or QuarkXPress, you're seeing the trees instead of the forest. These are the best-known, best-selling programs, but that doesn't mean they are the "best" choice for every user. The current lineup also includes programs specifically designed for low-end, long-document, or design-intensive work.

You should make a buying decision based on *your* needs, not on popularity or peer pressure. Read reviews, talk to users, and test-drive the candidates. Then ask yourself some real-world questions:

What kinds of publications will I be doing?

If your needs are modest — reports, newsletters, and fliers with spot colors — Aldus' Personal Press or Timeworks' Publish It! Easy is a good (and inexpensive) choice. If you're producing technical documents or books, PageMaker and FrameMaker have the strongest features. Frame



of the Art

Technology's FrameMaker, in particular, supplies such niceties as automatic figure numbering, cross-referencing, and a fine table editor.

If you do design-intensive work with only a few pages, such as advertising or brochures, consider Multi-Ad Services' Multi-Ad Creator or Eastman Kodak's Renaissance, which offer specialized graphics features. Finally, if you are producing four-color magazines or a variety of publications with differing demands, weigh the merits of PageMaker, QuarkXPress, and Manhattan Graphics' Ready,Set,Go!. All three provide robust feature sets, including the ability to do color separations.

Which features are mission-critical? If your publication work demands specific features — such as color separations, footnotes, indexes, or database publishing — use these requirements to quickly narrow the field. If your publications make heavy use of tables, for example, only two programs can create them with a minimum of hassle: FrameMaker and QuarkXPress (through third-party XTensions).

How will I output my documents? If your final pages will be printed on an inkjet or laser printer, any of the programs will do the trick. If you plan to send pages to a service bureau for output, however, be advised that PageMaker and QuarkXPress are the service-bureau standards and some operators won't take files from other programs (unless you save them as PostScript files).

Do I need cross-platform compatibility? If you need to exchange files with PC users, then

PageMaker and FrameMaker are the only real choices. The Windows version of QuarkXPress has been repeatedly delayed (and will require a shakeout period once it ships), and the Mac version of Ventura Software's Ventura Publisher is on life support. For users of UNIX workstations, only FrameMaker supports those platforms.

Do I want to customize the program? If you want to tailor a program to your specific needs, get one that provides hooks for plug-in modules and/or a user-scripting language. (Plug-in technology allows third parties to write specialized software whose features can be seamlessly integrated with the main program.)

PageMaker's Additions technology supports plug-in modules and a user-scripting language, although at press time, few third-party Additions were available. The undisputed king of modular programming is QuarkXPress, with nearly 100 XTensions available and more appearing monthly (see "XPress Yourself" in this Buyer's Guide). Personal Press, Publish It! Easy, and Ready,Set,Go! also have plug-in hooks, but the only modules released to date are bundled with the programs. (Ready,Set,Go! also has a scripting language.)

Fonts

By 1991, the number of PostScript Type 1 fonts had passed 3,000, a tidal wave that drowned TrueType on the Mac. Although TrueType fonts come with new Macs, you should switch to Type 1 versions if you're doing serious desktop

Desktop Publishing

publishing — most service bureaus, for example, use only Type 1 fonts.

Getting and using fonts is easier than ever. Nearly a dozen companies have unlockable-font CD-ROMs, which let you have entire font libraries at your fingertips without having to pay for them all at once. If you'd like to beef up the Adobe fonts in your PostScript printer, check out Sonnet Technologies' FontCards, a family of font cartridges for the LaserWriter IINTX, QMS-PS series, and Texas Instruments' microLaser printers. Sonnet can also make custom cartridges containing the Adobe fonts of your choice.

The flood of fonts isn't limited to traditional text and display faces. Need a picture of a telephone or train? Instead of importing a graphic, simply type the image as a font character, using PictureFonts, a delightful collection of pictures, ornaments, and borders from FontHaus. Want a snazzy 3-D look for your corporate logo? Both Typestry, from Pixar, and Strata-Type 3d, from Strata, can turn font characters into rendered 3-D images. Has *glasnost* expanded your business to Poland or points east? Casady & Greene's Eastern European Library and Glasnost Cyrillic Library can help you communicate.

If you still can't find the font you need, you can always make your own. FontMonger, from Ares Software, is a nifty utility that lets you convert TrueType fonts into Type 1 format (or vice versa). You can also use FontMonger to make custom fonts with fractions, small caps, EPS images, or characters from different fonts — all for \$99.95.

On a grander scale, Adobe's Multiple Master fonts let you generate — on the fly — thousands of typographically correct weights and widths from a single typeface. This revolutionary format holds great promise, especially in the areas of copyfitting and document portability. The first two faces, Myriad and Minion, appeared this year.

Graphics

Text without art is pretty dull, but as we all know, one of the Mac's strengths is visual gymnastics. This is well illustrated by the current crop of drawing programs, which can do everything but handsprings (see "True Perspective: Drawing Programs," in this Buyer's Guide).

But the bit-mapped beat is where the real action is. Digital photography is jumping, thanks to advances in scanning technology and image-editing software. Desktop scanners barely existed five years ago; today you can pick up an excellent 24-bit-color flatbed unit, such as the Hewlett-Packard ScanJet IIc, for around \$1,500. Need higher quality than a flatbed scanner can supply? Invest in a slide scanner, where the primary issue is not so much image quality as throughput

speed (see "Sliding into High Gear: Desktop Slide Scanners," in this Buyer's Guide).

Before long, however, you may not need a scanner at all. Why? Picture this: You drop off a roll of 35mm film for developing and request a set of prints on paper — and on CD. That's just what Kodak's new Photo CD system promises, at mass-market prices of \$20 for 24 exposures. Each digital photograph is stored on-disc in five resolutions, including a high-resolution compressed image for photographic-quality work. Kodak recently released Photo CD Access, a utility that lets you open, edit, and export the images. In the very near future, several Mac applications, including Adobe's Photoshop, EFI's Cachet, and Renaissance, will provide direct support for the Photo CD format. Apple also says that Photo CD support will be integrated into a future version of QuickTime.

If you'd rather not display your artistic talents (or lack thereof), there's no shortage of photography CDs, the latest wrinkle in electronic clip art. One good choice is the PhotoDisc series, from 21st Century Media. Each of the three CD-ROM volumes — Business and Industry, People and Lifestyles, and Backgrounds and Textures — contains 100 to 400 high-resolution, 24-bit stock photos. The most stunning artwork I've seen recently, though, is Artbeats' new Marble & Granite collection. These high-resolution, full-page backgrounds and frames are beautifully rendered and can also be used for presentations and 3-D texture mapping. For those who use laser printers, Artbeats has a special version of the package that contains 10-percent-gray-scale images optimized for 300-dpi output.



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Gray Scale 850x850 dpi	✖	✖	
Virtual Disk Technology	✖	✖	
RISC Processor	✖	✖	
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Upgrade controllers are available to give full Accel-a-Writer functionality to LaserJet [®] & LaserWriter [®] printers.			

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Obviously, all these multimegabyte graphics require some serious storage space. When it comes to transporting huge files, removable SyQuest and Bernoulli cartridges are showing their age, faring poorly when compared with speedy, durable 3.5-inch optical cartridges and removable hard drives (see "Removable Hard Drives," in this issue). And if you don't already have one, add a CD-ROM drive to your 1993 budget. As you've seen, CD-ROMs are now the standard delivery media for fonts and graphics. If you want to use Photo CD, be sure to get a drive that supports the XA standard.

Color Concerns

Color is everywhere in modern desktop publishing, even for those whose final output is still black-and-white. Yet, amazingly, there's still no way to ensure consistent color as an image travels from scanner to monitor to printer. That should change in 1993, however. Three companies — Apple, Kodak, and EFI (Electronics for Imaging) — are readying separate strategies for system-level color control. Each promises to provide a reliable means of specifying color as it moves through the production chain, guaranteeing that the mauve you see on-screen is identical to the purple that appears on paper.

EFI's EfiColor is the first CMS (color-management system) to reach market, albeit in a limited fashion. EfiColor is presently available only in Cachet, EFI's impressive color-editing package, and in the company's Fiery ColorLaser controllers for Canon, Xerox, and Kodak color copiers. But EFI is licensing EfiColor to other companies and has promised a Photoshop plug-in and QuarkXPress XTension as access points for EfiColor "real soon."

If you work with color photographs, you really should get Cachet. This amazing package lets anyone make reliable color corrections to scanned photos on an *uncalibrated* monitor, without any training or color knowledge. The process is quick and painless: You simply match the screen appearance of a scanned photo to that of an already-corrected reference image. Cachet currently supports nine output devices, with more to come.

Kodak actually has two color-management systems. The first, ColorSense, is a user application that should be out in December. The second, Precision CMS, is a developer-level approach. RasterOps, Radius, and SuperMac have all licensed Precision, but only RasterOps has announced a product. The RasterOps CorrectColor Management System (\$2,399) consists of the color-management software, the CorrectColor Calibrator (an optical-sensor system for calibrating monitors), and Photoshop plug-ins for color-correcting images.



The most significant player in color management, however, may be Apple, which has announced that its ColorSync system extension will be out by year's end. Few details were available at press time, but Apple claims that existing applications will be able to take advantage of ColorSync's color-management capabilities, without upgrades. If ColorSync turns out to be a less robust solution than those offered by EFI and Kodak, that's OK: ColorSync will allow third-party solutions to plug seamlessly in to its architecture, so that you can use the CMS you like best.

Print!

No matter what technologies and skills you use up front, in desktop publishing, the printed page is the only thing that really counts. If you're producing final pages from a desktop laser printer, seriously consider a 600-dpi model. These new-generation printers cost around \$4,000 — the same as a 300-dpi laser printer two years ago — and offer "good enough" output quality for newsletters and similar jobs that formerly would have been sent to a service bureau.

Once again, however, color is where the advances in output technology really shine. Prices for desktop color printers have dropped dramatically, and some units provide good enough quality to be used reliably as proofing devices. Look closely at the current crop of thermal-wax-transfer printers, which run about \$5,000 apiece, but if you have room in your budget, reserve judgment until you see the output from a dye-sublimation printer. This hot technology is pricey (as always with something new) but produces continuous-tone images that are very close to photographic quality. At press time, the best buy was Tektronix's Phaser IIISD, a RISC-based device that lists for \$9,995.

If you don't need professional-quality output and your job is a small one (say, 500 copies), you could use a color copier, such as Canon's Color Laser

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True 600x600 dpi	✖		
850x850 dpi Equivalent Gray Scale	✖		
Virtual Disk Technology	✖		
RISC Processor	✖	✓ NTR	✓ IIIsi
Standard 6MB RAM	✖		
Simultaneous Interfacing (AppleTalk®, serial, parallel)	✖		

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Desktop Publishing

Copier, as a short-run press. EFI's Fiery ColorLaser controller, for example, lets you (or a service bureau) drive the copier from a Mac, printing as many as seven pages per minute at 400 dpi.

Finally, the quality of desktop color separations produced by programs such as Aldus' PrePrint 1.5 has improved to the point where the separations receive grudging approval even from hardened skeptics. Separating complex pages in bit-map-hating programs such as QuarkXPress is much easier, thanks to growing support for Quark's DCS (Desktop Color Separation) technology and Photoshop's CMYK TIFF

format. And advancements in imagesetter screen-angle technology have greatly reduced problems with moiré patterns in printed digital halftones.

The biggest hurdle remaining on the track to high-quality color from the desktop is trapping. QuarkXPress 3.1 provides some trapping controls, but no company yet offers a foolproof solution. Until one does, keep in mind that trapping is a complex

skill; it's much easier and cheaper to let your print shop manually trap images than it is to deal with electronic trapping gone wrong. Aldus, however, recently announced the acquisition of RipPrep, a PC-based trapping program for EPS files that shows promise.

Another prepress technology, imposition, is also making the move to the desktop. Again, Aldus is a front-runner. Its new PressWise package is getting high marks from users for its elegant interface and powerful features for creating page signatures. PressWise may pose a serious threat to Ultimate Technographics' Impostrip, which is better established but more expensive, clumsier to use, and hardware copy-protected. At least two companies, DK&A and XTend, are working on imposition XTensions for QuarkXPress.

Many nay-sayers, particularly those in the printing industry, claim that prepress operations such as trapping and imposition are best left to printing professionals. Desktop solutions, they say, will compromise quality and productivity. Although it's too early to say who's right, remember one thing: They said that about digital type and color in the beginning too.

Now that she's shared (almost) everything she knows about DTP, senior editor Aileen Abernathy is embarking on a free-lance writing career.



All You Need to Know

MacUser closely follows new developments in hardware, software, and technology in the desktop-publishing market. In case you've missed some of our coverage in the past or are looking for more information on specific topics, we've selected the following articles to help you find the information you need. We've included in-depth lab reports that test and evaluate DTP-related hardware and software, features that analyze new technology, and articles that provide useful tips to enhance your skills as well as save you time and money. Articles are listed in reverse chronological order within each category.

Technology

"All the Right Angles," August '92, page 183, and "That's a Moiré," July '92, page 173 — Two articles designed to help you understand what moiré is and what you can do to avoid it.

"Optimal Output," June '92, page 193 — Valuable tips to follow when you use a service bureau, including ways to reduce time, cost, and frustration. Also included is a sidebar about utilities that can help you organize your lists of fonts and formatting specifications before you get to the bureau.

"A Mac Color Primer," May '92, Buyer's Guide page 4 — Everything you need to know about color for the Mac, including descriptions and an evaluation of different methods of color input and output.

"The Universal View Master," March '92, page 183 — A look at a future technology from Adobe that will let you view and print your PostScript files on a variety of computer platforms.

"Separating UCR and GCR," April '91, page 205 — A tutorial on undercolor removal and gray-component replacement that can help you understand the basics of color separation.

"True Grid," February '91, page 249 — Grid-design tips for enhancing your layouts.

"Mac-to-Prepress Links," November '90, page 211 — A look at the new design-to-prepress links, with a detailed description of how they work. A directory of prepress companies is also included.

"Proof Positive," July '90, page 183 — A discussion of different methods available for proofing color documents before a print run. A sidebar explains the problem of nonreachable color in process-color printing.

"Getting It on Film," May '90, page 351 — A checklist of simple questions to ask when looking for the right service bureau.

Hardware

"Storage: What to Buy, What to Pay," July '92, Buyer's Guide page 4 — An overview of the storage options currently available, including a directory of past coverage.

"Chasing Rainbows: Accelerated-Video Cards," May '92, Buyer's Guide page 16 — A report on eight video accelerators. Includes a detailed diagram of how video acceleration works as well as test results.

"New Color Printers," May '92, Buyer's Guide page

36 — We test and evaluate eight new color printers based on four competing technologies: inkjet, thermal-wax transfer, phase change, and continuous tone.

"Graphics Tablets: Drawing the Line," April '92, page 98 — An evaluation of the uses and features of six graphics tablets. Also includes an explanation and a diagram of how the tablets work.

"Practically Perfect Printing: High-Resolution PostScript Printers," February '92, page 172 — We test and evaluate ten high-resolution printers based on such features as output, speed, and price.

"Capturing Color: 24-Bit Scanners," December '91, page 152 — Nine 24-bit color flatbed scanners are put through their paces by our labs, which compares scanning methods, resolution, and preview features. Also included are five steps to better scans.

"The Affordable Rainbow: Color Inkjet Printers," October '91, page 140 — We test four color inkjet printers. An explanation of the inkjet printing process is also included.

"Is It Time for CD-ROM?" June '91, page 150 — An evaluation of 16 CD-ROM drives, on the basis of speed, access time, and throughput.

"The Perfect Image: True-Color Displays," May '91, Buyer's Guide page 4 — The results of our testing of 20 color-display systems.

"Easy Hard Copy: Color PostScript Printers," May '91, Buyer's Guide page 38 — A lab report on five color PostScript printers. Includes an explanation of how color can get lost during the printing process.

"Too Big to Fit on a Floppy?" February '91, page 232 — A discussion of strategies, including the use of compression utilities, for alleviating headaches that come from having large DTP files.

"Beyond the Laser Printer," January '91, page 197 — An examination of the advantages and disadvantages of owning your own imagesetter. Includes a directory of imagesetter vendors and valuable information on how to choose a service bureau.

Software

"The Third Dimension," September '92, page 114 — We review and evaluate fourteen 3-D drawing programs. A feature-comparison table and a chart that shows which programs suit your experience level are included.

"Plugging In to Photoshop," September '92, page 203 — A close examination of the different plug-in modules available for Photoshop. Also includes a directory of plug-in vendors.

"Publishing Your Data," February '92, page 120 — A look at different approaches to database publishing. Also includes a product directory.

"Page Elements with Style," January '92, page 159 — Tips on using your existing page-layout program to create works of art.

"Layouts for Less," July '91, page 110 — Five low-cost page-layout programs are tested. Includes an index of page-layout utilities available on-line.

"Photoshop Unmasked," June '91, page 193 — An

expert from Adobe explains alpha channels and masking in Photoshop, in detail.

"Designing for Fax," May '91, page 201 — A collection of tips for jazzing up fax images.

"Painting Programs: The Fine Art of 32-Bit Color," March '91, page 134 — Four full-color painting programs are tested and rated. The differences between 32-bit painting programs, photo-retouching programs, and object-oriented drawing programs are explained and the uses for each are discussed.

"Clip Artistry," November '90 page 168 — A guide on how to choose, edit, and use clip art. Also includes capsule reviews of popular clip-art packages.

Type

"Flexible Fonts," October '92, page 205 — A look at Adobe's revolutionary Multiple Master technology and the first products based on it.

"Fonts on Demand," May '92, page 165 — An evaluation of the usefulness and cost of the new unlockable-font CD-ROMs. Includes a directory of discount font sources.

"Font Samplers," December '91, page 173 — Reviews of three utilities that help you create a type-specimen book.

"Dueling Font Standards," October '91, page 165 — A comparison of Apple's new font standard, TrueType, with the reigning standard, Adobe PostScript Type 1. The advantages of each are discussed.

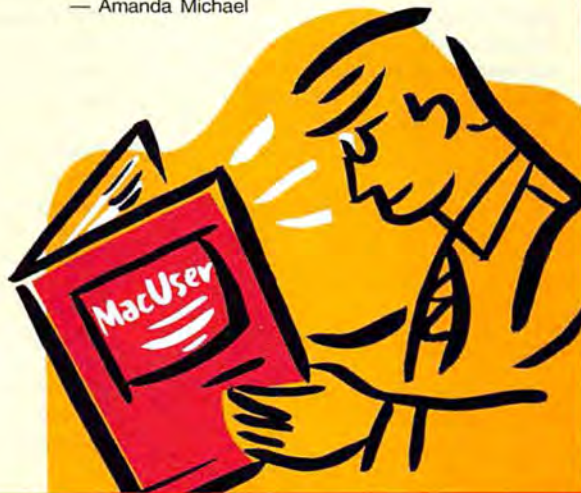
Other

"Color Directory," May '92, Buyer's Guide page 57 — A comprehensive directory of vendors of all types of color desktop-publishing equipment.

"Graphics Glossary," April '92, page 165 — Definitions and explanations of all the terms you need to know to understand DTP — or at least sound like you do!

"The Paper Trail," March '91, page 181 — A comparison of 30 different types of laser-printer paper based on cost, weight, available colors, and composition.

— Amanda Michael



Desktop Publishing

Desktop-Publishing Directory

Adobe Systems

1585 Charleston Road
P.O. Box 7900
Mountain View, CA 94039
800-833-6687
415-961-4400
MM Minion, \$470
MM Myriad, \$370
Photoshop 2.0.1, \$895

Aldus Corp.

411 First Avenue S.
Seattle, WA 98104
800-333-2538
206-628-2320
PageMaker 4.2, \$795
Personal Press 2.0, \$199
PrePrint 1.5, \$495
PressWise, \$2,295

Ares Software

561 Pilgrim Drive
Suite D
Foster City, CA 94404
415-578-9090
FontMonger, \$99.95

Artbeats

P.O. Box 1287
Myrtle Creek, OR 97457
800-444-9392
503-863-4429
Marble & Granite, \$349
Marble & Granite for Laser Printers, \$99.95

Casady & Greene

22734 Portola Drive
Salinas, CA 93908
800-359-4920
408-484-9228
Eastern European Library, \$200
Glasnost Cyrillic Library, \$200

Eastman Kodak Co.

343 State Street
Rochester, NY 14650
800-242-2424
716-724-4000
Photo CD Access, \$39.95
Renaissance 1.0, \$895

EFI (Electronics for Imaging)

950 Elm Avenue
Suite 300
San Bruno, CA 94066
800-285-4565
415-742-3400
Cachet, \$595

FontHaus

15 Perry Avenue
Suite A8
Norwalk, CT 06850
800-942-9110
203-846-3087
PictureFonts, \$49.95 each

Frame Technology

1010 Rincon Circle
San Jose, CA 95131
408-433-3311
FrameMaker 3.0, \$795

Manhattan Graphics Corp.

250 E. Hartsdale Ave.
Suite 23
Hartsdale, NY 10530
800-572-6533
914-725-2048
Ready, Set, Go! 5.0, \$395

Multi-Ad Services

1720 Detweiller Drive
Peoria, IL 61615
309-692-1530
Multi-Ad Creator 3.0, \$895

Pixar

1001 W. Cutting Blvd.
Richmond, CA 94804
510-236-4000
Typestry, \$299

Quark

1800 Grant Street
Denver, CO 80203
800-788-7835
303-894-8888
QuarkXPress 3.1, \$895

Sonnet Technologies

18004 Sky Park Circle
Suite 260
Irvine, CA 92714
714-261-2800
FontCards, \$399 – \$499

Strata

2 W. St. George Blvd.
Suite 2100
St. George, UT 84770
801-628-5218
StrataClip 3d, \$229
StrataType 3d, \$295

Timeworks

625 Academy Drive
Northbrook, IL 60062
800-323-7744, orders only
708-559-1300
Publish It! Easy 3.0, \$199.95

21st Century Media

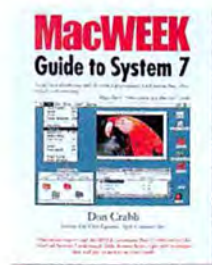
2013 4th Avenue
2nd Floor
Seattle, WA 98121
800-528-3472
206-441-9355
PhotoDisc, \$395 per volume

Ventura Software

15175 Innovation Drive
San Diego, CA 92128
619-673-0172
Ventura Publisher 3.2, \$795



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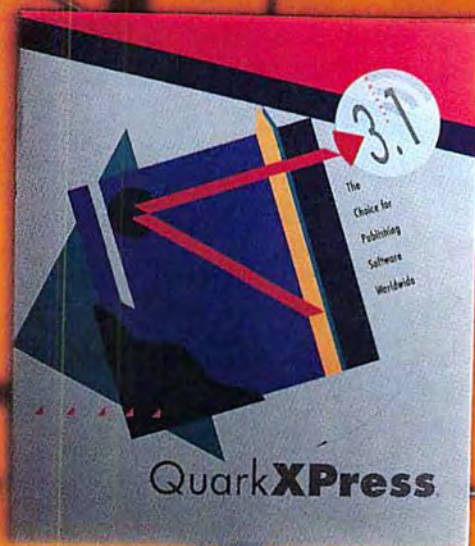
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XPress Yourself

Modularity is a hot concept — just ask Apple. But long before system extensions, PageMaker Additions, and Photoshop plug-ins became the rage, a little company called Quark announced that its page-design program, QuarkXPress, would provide hooks for plug-in modules called XTensions.

Quark founder Tim Gill realized that he couldn't cram every desirable feature into QuarkXPress without unacceptable trade-offs in size, speed, cost, and complexity. So in 1989, he unveiled the XTensions technology, an open architecture that lets third parties write specialized software that can be integrated seamlessly with QuarkXPress.

Few programs let you express yourself like QuarkXPress. Here are 65 XTensions, each under \$500, that let you customize QuarkXPress to your heart's content.

BY PHILIP BISHOP AND AILEEN ABERNATHY

Page Layout

Developers and users responded enthusiastically, and the flexibility provided by XTensions was a major factor in the phenomenal success of QuarkXPress 3.0. Users appreciated the ability to add just the features they wanted to QuarkXPress without being burdened with others they'd never need. Developers liked the ability to take an off-the-shelf product — QuarkXPress — and customize it to meet the specialized needs of a niche market. QuarkXPress' extensibility also enabled it to penetrate high-end publishing.

Today nearly 100 XTensions are shipping — and those are just the ones available commercially. Dozens of proprietary XTensions exist, created by individuals and businesses ranging from a Tennessee Sunday school to Dow Jones.

XTensions run the gamut from the sublime to the ridiculous, from the elegant MasterMenus to frivolous freebies such as a/iCu, a pair of eyeballs that follows the cursor around the screen. Prices range from free to the dizzying heights of vertical markets — at \$4,995, Ad Director, from Managing Editor Software, is almost six times the price of QuarkXPress. Some XTensions improve upon QuarkXPress' interface; XStyle (see Figure 1), for example, adds useful style palettes. Other XTensions supply features missing from the core program, such as tables and indexes. Still others are proprietary add-ons that enable QuarkXPress to work with high-end prepress systems, including those from Scitex and Linotype-Hell.

Clearly, there are too many XTensions to cover in a single article, and more appear each month. In this overview, we'll look at 65 general-interest XTensions that cost less than \$500 each. Previously, we've covered the growing group of publication-management tools, which includes QuarkCopyDesk and QuarkDispatch (see "Workgroup Publishing," February '92, page 211). Future articles will address products in evolving categories such as page imposition, which

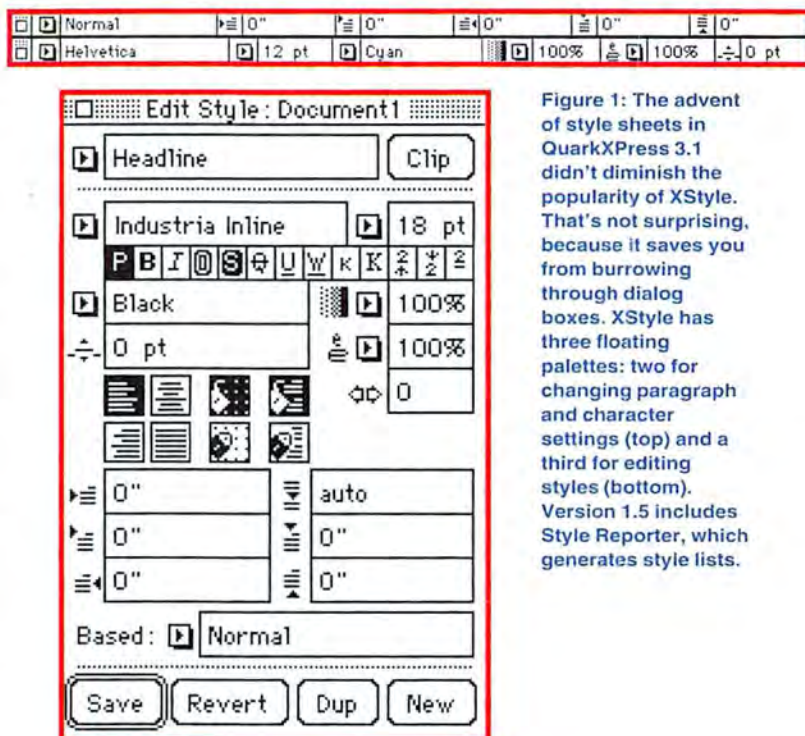


Figure 1: The advent of style sheets in QuarkXPress 3.1 didn't diminish the popularity of XStyle. That's not surprising, because it saves you from burrowing through dialog boxes. XStyle has three floating palettes: two for changing paragraph and character settings (top) and a third for editing styles (bottom). Version 1.5 includes Style Reporter, which generates style lists.

has to do with arranging book pages for printing.

An Xacting Science

Each XTension is a separate miniprogram that has direct access to the internal code of QuarkXPress. To

install an XTension, you place it in the folder containing the QuarkXPress application. When you launch QuarkXPress, it loads all available XTensions. Instead of being sequestered in a separate menu, à la PageMaker's Additions, XTensions

Fair XChange

If you're in the market for an XTension or three, chances are you'll get it from XChange, a San Francisco company formed in 1991 by entrepreneurs William Buckingham and Will Whitaker.

XChange is a one-stop resource for users and XTension developers. During product development, XChange offers assistance with interface design, documentation, and packaging. Once an XTension is ready to ship, XChange handles the marketing, distribution, and technical support. XChange is active on several on-line services, particularly CompuServe, where it has a section in the DTP Vendor Forum (GO DTPVEN).

The company produces a quarterly catalog of XTensions and also sponsors the XTension of the Month Club. For \$99 per year (\$149 overseas), club members receive a free XTension plus an informative newsletter each month.

Our only serious gripe is that XChange's catalog mixes existing XTensions with those still in development without indicating which products are vaporware.

XChange also distributes numerous free XTensions and demos. You can download them individually from various on-line services or buy the collections from XChange for \$25 per disk. Offerings include Quark's set of free XTensions, a disk containing demos of commercial XTensions, and Sampler Disk 2.0, a starter collection of XTensions from several developers. The Sampler Disk includes

- ASave/Stamp, which specifies an interval for automatically saving QuarkXPress documents.
- Bureau Express, which automatically transmits files by modem to a BureauMaster-equipped service bureau.
- Color Prefs, which sets dialog

are integrated throughout the QuarkXPress interface. XTensions can appear anywhere — as floating palettes or menu items or simply in the background.

But there's a drawback to this dexterity. An XTension's greatest strength — its bonding with QuarkXPress' core code — is also its greatest weakness. XTensions are prone to break with each QuarkXPress upgrade (several were incompatible with version 3.1), so they must be continually retested and upgraded. PageMaker's Additions, on the other hand, don't have direct access to the program's core code, which limits their functionality. Additions can't be implemented as floating palettes, for example, or run in the background — but they don't run the risk of breaking with each PageMaker revision either.

If you don't want to use a particular XTension, you simply move it into another folder so QuarkXPress can't find it. Tired of shuffling XTensions among folders? Get XTension Manager, from DK&A. Hold down the Option key as QuarkXPress launches, and XTension Manager presents you with a list of available XTensions; you choose which ones to load. You can also save groups of XTensions as

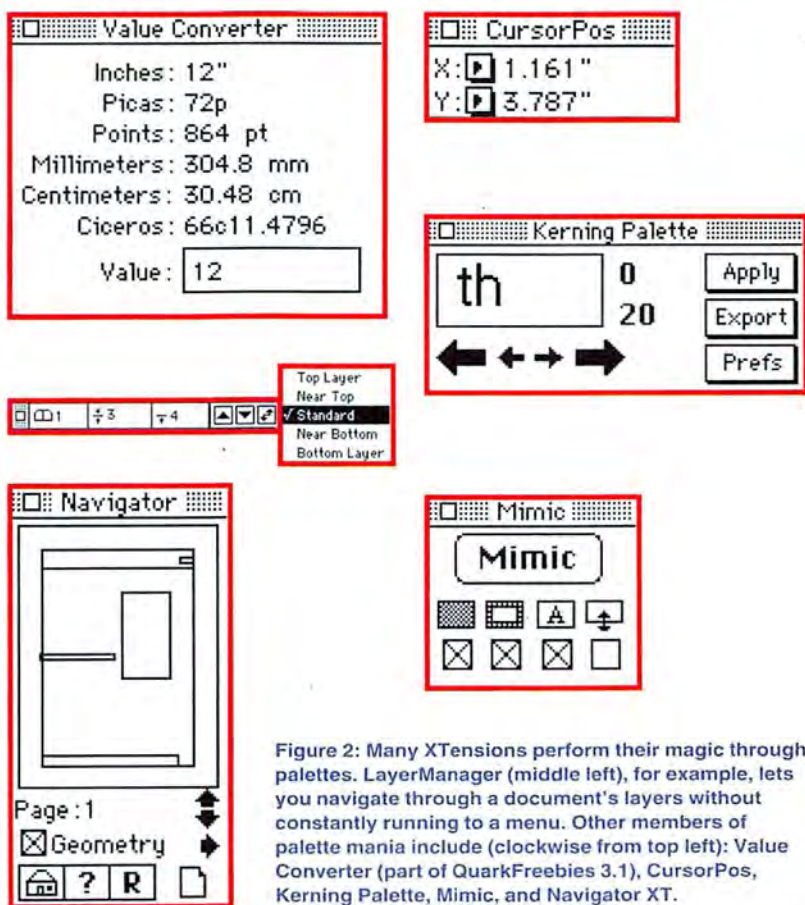


Figure 2: Many XTensions perform their magic through palettes. LayerManager (middle left), for example, lets you navigate through a document's layers without constantly running to a menu. Other members of palette mania include (clockwise from top left): Value Converter (part of QuarkFreebies 3.1), CursorPos, Kerning Palette, Mimic, and Navigator XT.

boxes, page guides, and other interface elements to your favorite color.

- FlashEditing, which prepares a simple report for service-bureau output, including the fonts and graphics in your document and output requirements such as resolution and screen ruling.
- SetInset, which sets the inset individually for the four sides of a text box instead of only a single setting.
- SetSnap, which sets the distance, in pixels, for the standard Snap to Guides command.
- Sounds, which adds useless but amusing noises to various QuarkXPress functions.
- TypesettingMarks XT, which solves common typography problems: It deletes extra spaces, converts straight quote marks to curly ones, and automatically inserts ligatures and em or en dashes where needed.

sets. Select a set, and only those XTensions will load. We hope that in future versions of XTension Manager, we will be able to turn XTensions on and off while QuarkXPress is in use and to open XTensions located in other folders.

Free and Easy

Before delving into the plethora of commercial XTensions, you should snag two collections of free add-on modules, one each from Quark and XChange. XChange distributes all the XTensions in this article; its Sampler Disk contains eight XTensions of varying usefulness (see the "Fair XChange" sidebar). Of greater interest are the 11 modules from Quark itself, all of which are valuable additions to QuarkXPress.

QuarkFreebies 3.1. The best-known free XTension, QuarkFreebies

has two modules: FeaturesPlus and NetworkConnection. FeaturesPlus contains six conveniences from previous versions — Fraction/Price Preferences, Make Fraction, Make Price, Remove Manual Kerning, Word Space Tracking, and Value Converter palette (see Figure 2) — plus two new features. Windows brings any QuarkXPress document to the front when more than one document is open. Alternate Em Spaces provides a workaround for one of Quark's quirks — its unorthodox definition of em spaces as the width of two zeroes. When you select the alternative method, em spaces will be defined according to the traditional system of measurement, in which an em space is the same size as the width of an *m* in that particular size and font.

QuarkFreebies' other XTension, NetworkConnection, allows you to

Page Layout

exchange messages, pictures, and text files with other QuarkXPress users over a network.

Bob. This oddly named XTension and its offspring (see next item) offer an eclectic array of features. You can quickly move to any page in a document by using the pop-up icons in Go to Page. Line Check searches documents for typographic peccadilloes such as loose lines and widows. But Bob's coolest component is Color Drag. Simply click on any color swatch in the Colors palette; drag it to the line, frame, or box background you want to color; and let go to color the element. Too bad it doesn't work on text.

Son of Bob. Among the half-dozen features in this sequel, Convert Quotes automatically converts straight quotes to curly ones as you type. Control-V lets you quickly change the page-view scale by typing Control-V plus the desired viewing size. Best of all is Super Math, which adds multiplication and division capabilities to any numeric-entry field (addition and subtraction are already available).

Keep an eye out for Bobzilla, the third in this wacky series. Preliminary peeks revealed a starburst tool and a souped-up step-and-repeat command.

Cool Blends. QuarkXPress 3.1 lets you create linear blends as backgrounds for picture and text boxes. Cool Blends (see Figure 3) supplies five blend types, including circular and midlinear ones.

Color Sets. Not an XTension per se, the Color Sets data file adds three more Pantone color-matching systems — Process Color, ProSim, and Uncoated — to QuarkXPress' lineup.

PM Import. One of the most-requested (and hyped) XTensions, PM Import converts PageMaker 4.0 and 4.2 files into QuarkXPress 3.1 documents. The XTension can't import certain PageMaker features, including style sheets, tracking data, rotated text, and indexes. And PM Import has other weirdnesses: In our tests, page elements were occasionally missing or placed on top of one another or on



Figure 3: Cool Blends, a free XTension from Quark, adds five new options to the Blends pop-up menu in the Colors palette of QuarkXPress 3.1. This example makes good use of the midlinear blend.

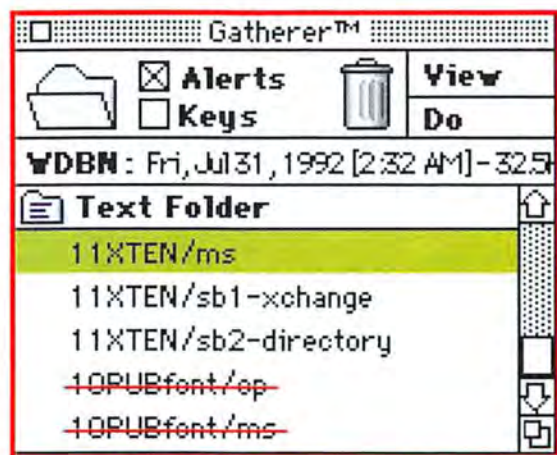


Figure 4: Using the Gatherer is like having the Finder inside QuarkXPress. It rounds up text and graphics files from specified folders and lists them in a palette. To place an item, just drag it onto the page — you don't have to create a box first. Placed items are crossed out with red lines.

different pages than in the original PageMaker document. Despite the cleanup required, however, using PM Import is much faster than re-creating PageMaker files from scratch in QuarkXPress.

WP Filter. This one-trick pony imports files created in WordPerfect (version 2.0 and later) into QuarkXPress 3.1.

Plug-In XTension. Combine the Plug-In XTension with the right Photoshop plug-in module, and you can scan a photo directly into QuarkXPress. The Plug-In XTension accesses all Photoshop "acquire" plug-ins, including those for driving scanners and video-digitizing systems and for decompressing JPEG images. It doesn't support special-effects plug-

ins such as Aldus Gallery Effects.

Multiple Masters Utilities. QuarkXPress is one of the first applications to offer special support for Adobe's Multiple Master font technology (see "Flexible Fonts," October '92, page 205). The XTension can automatically generate missing instances (style variations) of a Multiple Master font, and it gives you access to Adobe's Font Creator utility from inside QuarkXPress.

Calibration. Using the Calibration XTension and a densitometer, you can adjust the calibration curves in your printer files to compensate for the bleeding of halftone dots, thus avoiding color shifts in screen tints during printing.

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you send files to a service bureau for output, keep an eye out for the Prepare for Service Bureau XTension (it hadn't been released yet at press time). It copies a QuarkXPress document and associated graphics (but not fonts) into a single folder and produces a text file that lists output requirements, including all the fonts and graphics used in the document. A second feature, Trap Preferences, automatically embeds your trapping values in the document.

All the free XTensions, from Quark as well as from XChange, are available individually from on-line services and some user groups. If you prefer, you can get each set on-disk from the companies for a \$25 handling fee.

If you need more power than the free XTensions provide, it's time to explore the commercial modules.

Managing QuarkXPress

A Lowly Apprentice Production offers a trio of useful XTensions for fine-tuning QuarkXPress' interface. Default Settings lets you customize the appearance of windows, palettes, and dialog boxes; set the display resolution for imported TIFF images; and specify default units of measurement for items such as leading, text inset, and trapping. You can name and save sets of default values and switch among them at will. The aforementioned pair of watchful eyeballs, *a/iCu*, comes with this XTension. LayerManager (see Figure 2) is a handy palette for navigating quickly through a document's layers, sparing you from constantly accessing the Bring to Front and Send to Back menu commands. You can even assign objects to specific layers. ViewIT lets you arrange document windows just the way you want them — overlapping, neatly tiled, whatever. You can also hide windows and have each document remember its window size and position the next time it's opened.

The most prolific XTensions developer, hands down, is Jacques Viker, of Vision's Edge. If you have a small monitor, you will appreciate his

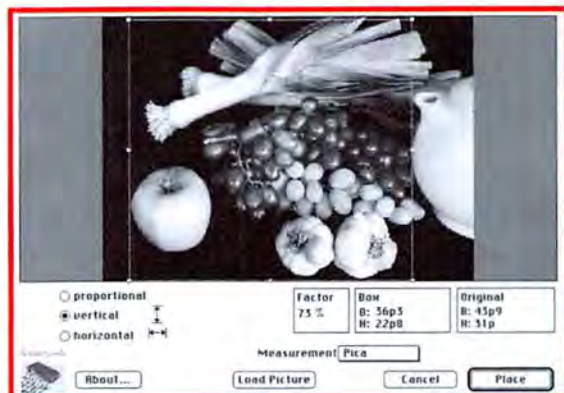


Figure 5: XSize lets you size and crop graphics before you place them on a page. Images are displayed in a special dialog box that has a selection rectangle that corresponds to the dimensions of the desired picture box.

Navigator XT (see Figure 2), which lets you jump to any point on a page merely by clicking on that spot in a thumbnail view. The Missing Link alters the behavior of QuarkXPress' link and unlink tools. You can join two chains of text-containing boxes, splicing one into the other at any point. Even better, you can duplicate a text box in the middle of a chain; it becomes a stand-alone unit containing the text in the original box and can be moved at will.

But the cream of the crop is MasterMenus, which lets you access any QuarkXPress menu items (except XTensions) from a floating palette. The palette's contents are added to and subtracted from through a dialog box, where you also can abbreviate menu names so they fit in a minimum of space. Never again will you waste time and energy hunting through menus for frequently used commands. (A tip of the hat to Klik'X, the free XTension on which MasterMenus is based.)

The Gatherer (see Figure 4), from Managing Editor Software, does just what its name says: It automatically rounds up text and graphic files from specified folders anywhere on your network and lists them in a palette, ready for you to place directly onto a page. You don't have to create a box first. Just select an item, drag out a box, and specify the parameters you want, and Gatherer does the rest. This could be the hot XTension of 1992.

FileManager, from CompuSense, is

another nifty XTension. It has three key features. First, it lets you build a library of frequently used page set-ups. Second, it lets you add a header that shows a document's status (such as whether it's a draft or final version) and lists its name, author, and last revision. You can search for documents based on these fields and then open, print, move, or delete them. Third, it can round up all files needed for outputting the document, including graphics and fonts, and place them in a single folder. In this respect, FileManager is similar to Magpie, which we will discuss later.

Just Your Type

QuarkXPress has powerful typographic features; even so, it doesn't address every nuance of text handling and typography. CompuSense licensed Circle Noetic Services' hyphenation code and created Dashes, an XTension that provides high-quality hyphenation in 20 languages, including Swedish and Swahili. You can insert or remove discretionary hyphens and build an exception dictionary, which can be imported and exported as a text file.

QuarkXPress has a spelling checker, but CompuSense's Spellbound adds a few twists. You can have as many as five auxiliary dictionaries open — and editable — simultaneously, detect capitalization errors, use an exception dictionary for enforcing in-house spelling styles, and check the spelling in eight languages besides English. Its

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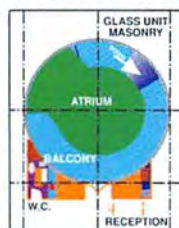
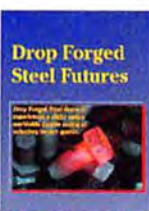
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dictionaries support the full Mac character set, including ligatures, accented characters, and dashes. Need a thesaurus? Vision's Edge based its Thesaurus Rex XTension, which has a database of 220,000 synonyms, on Microlytics' Word Finder.

In text that suffers from unsightly line endings, Kytex's SeXT kills off widows. Its modus operandi: adjusting the tracking according to user-defined specifications — in increments as small as 1/20,000 em! For more-serious copy-fitting problems, CopySet, from Vision's Edge, creates a temporary text box (colored a hard-to-miss magenta) that shows you how much copy you must dispatch. But that's only the beginning. CopySet also lists all your stories in a floating palette and tells you how many characters, lines, or inches you need to cut for each. Finally, click on the XTension's Trim button, and it automatically shrinks or expands a text box (or chain) to fit its contents.

If you have to fit copy into a box — no matter what — try VJ (vertical justification), from the French company Trias. It force-fits text into a box, altering the point size, leading, tracking, and horizontal scaling as needed (you set the limits).

Alias, a popular XTension from the French company Reseaux, lets you do search-and-replace operations on text within a document or as it's being imported. You can insert typographic niceties such as curly quotes and em dashes, for example, and filter control characters out of downloaded files. Kytex's CursorPos (see Figure 2) is a tiny floating palette that tells you precisely where the I-beam pointer is, with x,y coordinates. You can measure from the edge of the page, margin, or text box — useful for checking baseline alignments throughout a document.

QuarkXPress can skew graphics but not text. At least three XTensions, the best of which is TeXT Tools, from Vision's Edge, can put a tilt in your type. TeXT Tools skews text as much as 90 degrees forward or backward;

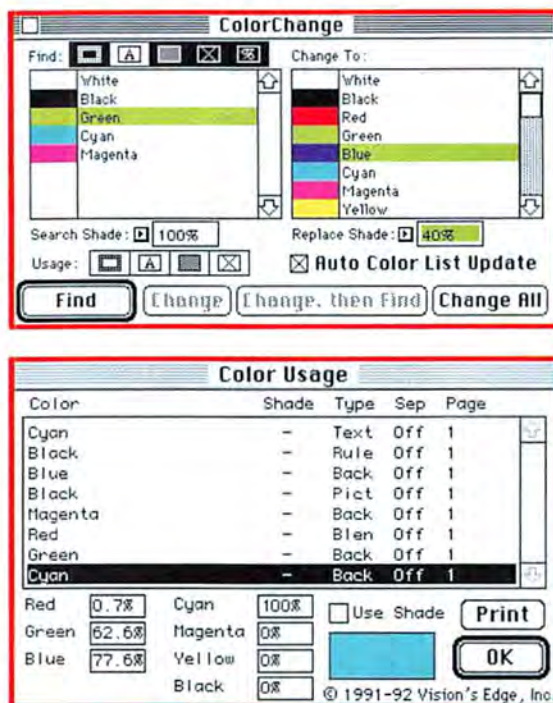


Figure 6: Vision's Edge, a prolific XTensions developer, offers two color-handling utilities. ColorChange (top) lets you search and replace colors and shades. Color Usage (bottom) displays a list of the colors used in a document's internal elements. Click on an entry, and you get a color swatch along with its RGB and CMYK values.

skewed text is fully editable. TeXT Tools has two other neat features: It can convert ranges of text to lower-case or small capitals, and it can export all the stories in a QuarkXPress document to a single text file.

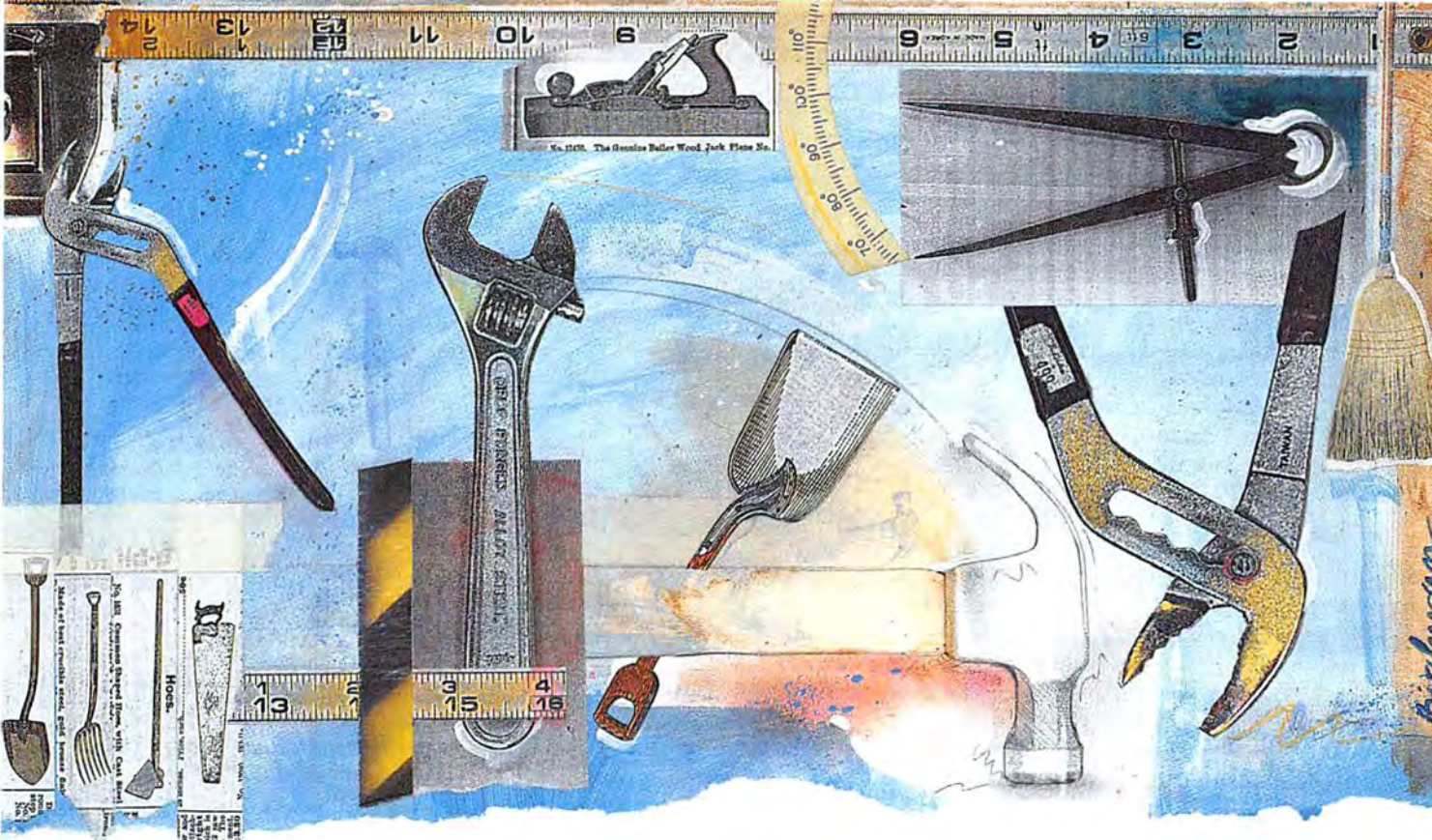
Kerning Palette (see Figure 2), from Clearface, lets you adjust a font's kerning pairs in true context — just click on a problematic pair and open the XTension. Kerning Palette opens the relevant font file and displays the kerning value for the chosen letter pair. Change the value, and the text is automatically updated. You can store the altered kerning data in the font itself (in which case it can be used by other applications) or in QuarkXPress' Preferences file. For those who are frustrated by QuarkXPress' inability to kern pairs that contain the space-band character (space between words), Monotype's Agency Fit includes an XTension that lets you kern space bands in a selected story or range or throughout a QuarkXPress document. Volume 1 of Agency Fit also supplies kerning and tracking data for 65 PostScript fonts; Volume 2 provides data for another 250 fonts.

Baseview Products' QXEdit is akin to PageMaker's story editor: It lets you edit chunks of text in a separate, non-WYSIWYG window, using an eye-saving font size of your choice. QXEdit displays style attributes such as bold and italic, but it doesn't show line and column breaks. QXEdit is no speed demon, but for substantial text changes, it's a big improvement over continually waiting for QuarkXPress to reflow pages.

Want a quick way to copy and paste specifications? CopySpecs, from Frank Kubin, works like an on-the-fly style sheet. You can copy text attributes such as font, size, and tracking from one piece of text and simultaneously apply them to one or more selected areas of text, even within the same paragraph. Mediatic's Mimic (see Figure 2) duplicates the specs of an entire text or graphics box, including colors, box sizes, text styles, and line-by-line formatting.

Graphically Speaking

QuarkXPress' library feature provides a great way to store graphics and page elements, but to place items



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in a library, you must drag or paste them individually into the library palette. AutoLib, from Vision's Edge, simplifies this chore, allowing you to create entire libraries quickly. Just gather the desired graphics into a folder and select Create Library. AutoLib creates a new library and automatically places all the graphics in it.

XSize (see Figure 5), from the German developer Schnittstelle, lets you size and crop images in a special dialog box *before* you import them. With Picture Scale, from Integrated Software, you can scale images or their boxes in user-defined increments, proportionally or not. A second feature lets you quickly size a picture box to fit a graphic (or vice versa).

Need to import a graphic in an alien format? Equilibrium's GraphXChange imports graphics in more than 20 bit-mapped formats not normally supported by QuarkXPress, including EPS and TIFF files from the PC, raw RGB, CompuServe's GIF, Lotus' PIC, Targa's TGA, WordPerfect's WPG, Pixar's RIB, and the native file format for Photoshop.

Whether their format is native to the program you're using or not, graphics can make screen redraws and printing painfully slow. Picture Tools, yet another XTension from Vision's Edge, speeds things up by letting you control the grepping and printing of individual pictures. Keyboard command equivalents allow you to greek or ungreek all pictures globally, and a special dialog box lets you suppress the printing of any or all pictures. Like Picture Scale, this XTension lets you resize a picture box to fit a graphic.

A pair of clever add-ons that *aren't* XTensions are Electronic Border Tape and EBT Too, from ShadeTree Marketing. These collections of bit-mapped frames (100 per package), which can be applied to any rectangular text or picture box, range from simple and elegant to fancy and flashy. Each package comes with Frame-Mover, a utility that moves frames in and out of a QuarkXPress Preferences file.

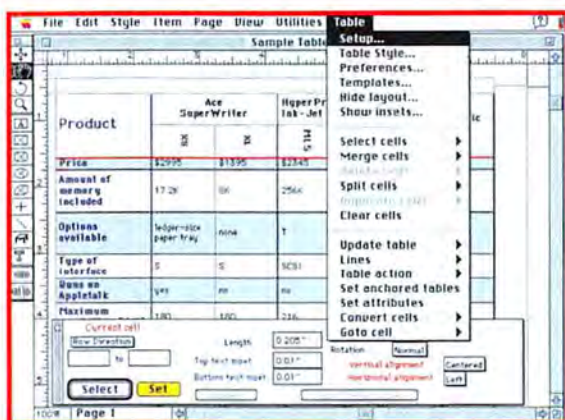


Figure 7: Tableworks has all the features you need to create tables of any size and complexity. It even has its own tool in the Toolbox. A nice touch: Text boxes can automatically expand to accommodate imported text.

Designer Pages

Setting up a publication grid by pulling out guides from the QuarkXPress ruler is time-consuming and requires a lot of fiddling around. With J. Michael Mariner's Grid Layout, however, you merely type in the number of rows and columns, and the entire grid appears, in your choice of eight colors. You can specify as many as 36 x 36 rows and columns (including gutters) on a single page or across a spread.

Some XTensions contribute a single, often invaluable, design nicety. NudgeIT, from A Lowly Apprentice Production, lets you navigate text or move boxes or their contents in user-determined increments, as opposed to QuarkXPress' 1-point and .1-point defaults. With Resize XT, from Vision's Edge, you can quickly scale a line or group of boxes — and their contents — between 20 percent and 400 percent. Scale down a chain of text boxes, for example, and the point size, leading, and so forth will be appropriately reduced.

Need a drop shadow or starburst? Integrated Software offers XTensions for both. Shadow creates a drop shadow of any color and offset behind a text or picture box. Starburst makes star-shaped polygons; you determine the number of spikes and their length to get the desired effect.

Vision's Edge offers two simple but handy color-related XTensions (see Figure 6). ColorChange lets you search and replace specific colors and

shade percentages in pictures (including PICT and TIFF images), frames, box backgrounds, and lines. Color Usage displays a list of the colors that are used in a document's internal elements, including the shade, page number, and separation status. When you click on an entry, you get a color swatch along with its RGB and CMYK values.

For a few dollars more, CompuSense's ColorManager combines and refines many features of ColorChange and Color Usage. You can selectively change colors and tints (except in PICT and TIFF images), view each color's separation status (spot or process), and set the screen angles. ColorManager displays a list of the colors used within a document, and even better, it shows the colors used in your EPS graphics. If an EPS color isn't defined in QuarkXPress, the XTension can add the definition to the color palette — a necessity for correct output.

If you regularly produce catalogs, directories, or other publications that use information from databases or spreadsheets, Em Software's Xdata is a must-have XTension. It is a sophisticated database-publishing tool that lets you automate the formatting of ASCII text files imported in tab- or comma-delimited format. Xdata performs its magic by using a prototype document, which you build with its powerful scripting language to indicate the placement and appearance of text. Version 2.0 adds the ability to



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Page Layout

import graphics and to automatically generate headers and footers across a page or spread.

Missing Links

Aldus built indexing and table-of-contents generation in to PageMaker; Quark deemed them auxiliary features and left it to outside companies to fill the void. Virginia Systems offers Sonar Bookends and Sonar TOC, which work on ASCII text files exported from QuarkXPress. Sonar Bookends creates an index consisting of either all words in a file or just those on a list you supply. Sonar TOC, which requires Sonar Bookends, generates a table of contents based on words you've previously marked in QuarkXPress. When you're finished, Bookends and TOC files can be used as is or can be imported back into QuarkXPress for further formatting.

Future Publishing's IndexTension creates indexes within QuarkXPress, eliminating the need to export text files. You mark the desired words and phrases, and IndexTension generates the index, which can be formatted and, if desired, merged with other indexes from other documents.

Another area in which QuarkXPress comes up empty is tables. Tableworks (see Figure 7), from Npath Software, is the tool of choice. It has all the features you need to create tables of any size and complexity, including full access to QuarkXPress' typographic and formatting tools. It provides headers and footers; templates; anchored and multipage tables; auto-configuration of cells to fit imported data; and support for straddle cells, rotation, and all graphic types. Tableworks has a tutorial, and despite the program's complexity, you'll be creating tables within minutes of installation. For those who don't need all those features, Tableworks Short-Cut offers a more basic feature set.

Output-Oriented

Only one thing is more frustrating than not being able to print a document, and that's not knowing *why* it

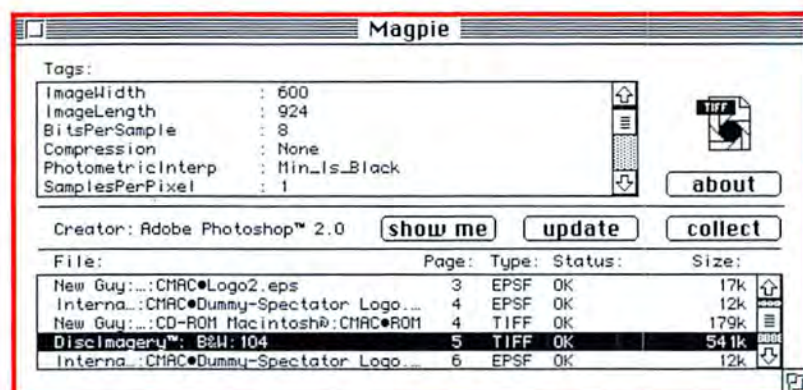


Figure 8: For those who send files to a service bureau for output, Magpie is a guaranteed time saver. It compiles a list of the fonts, graphics, and colors used in a document and also flags problems. Click on the Collect button, and Magpie gathers the required files — document, graphics, and fonts — and places them in a single folder for speedy transport.

won't print. PinPointXT, from the Cheshire Group, reports on PostScript printing problems, showing you what was processing prior to the error, the error type, and exact page location where the error occurred. Armed with this information, you look up the error in the provided dictionary, which explains the problem and offers advice about how to fix it. Some of PinPointXT's explanations may be a bit too technical for the average user, however.

Are the folks on your network tired of having their Macs tied up while QuarkXPress documents print? QSpool, from Baseview Products, is a multiuser print spooler that frees up their computers in seconds. When a document is ready for output, you copy it to a designated folder (preferably on a file server); QSpool automatically opens, prints, and then deletes the file from the spooler folder.

Printer's Spreads, from Corder Associates, provides a quick and easy way to reorder QuarkXPress pages so that they print correctly in the two-page spreads used for saddle-stitched (stapled) publications. If you have a 12-page document, for example, Printer's Spreads will reorder the pages so that page 12 matches up with page 1, page 2 with page 11, and so on. Printers and imagesetters that support 11-x-17-inch paper or film (the width

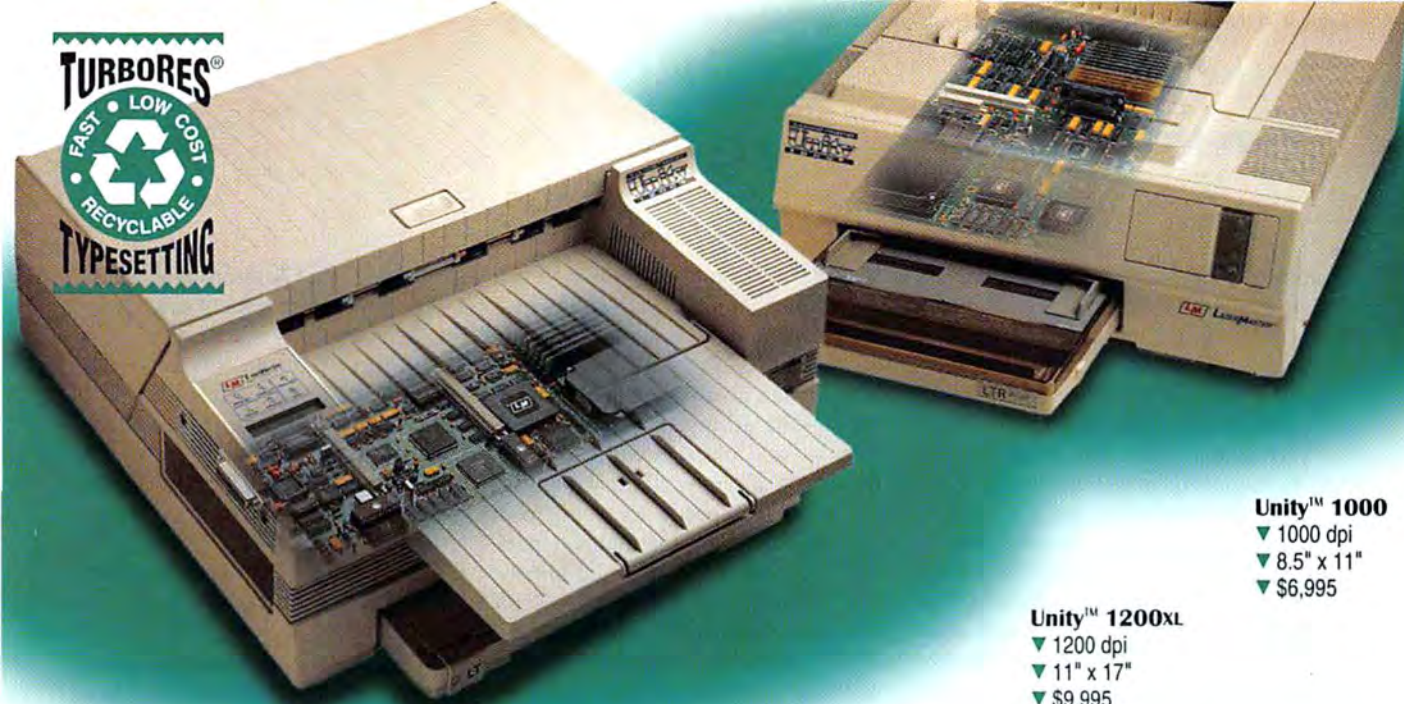
of two letter-sized pages) are becoming more common, and this XTension should be a real boon for simple publications such as manuals, newsletters, and small catalogs.

For those who work with color, Pre-Press Technologies offers SpectreSeps QX, which plugs QuarkXPress' most gaping hole: its inability to separate continuous-tone images (color TIFF and PICT). The XTension separates entire documents and lets you correct image colors and adjust all output and press parameters. Pre-Press Technologies additionally markets SpectreScan QX, which allows you to operate color scanners from within QuarkXPress and lets you color-correct captured images.

At Your Service (Bureau)

Preparing files for output at a service bureau can be a real hassle. First you must make a complete list of all the document's elements — fonts, graphics, and output parameters. Then you have to gather all the necessary files, making sure not to forget anything. There's no shortage of XTensions to help you through the process; here are our favorites:

QuarkPrint is an upscale version of Quark's free Prepare for Service Bureau XTension. Although it was not yet shipping at press time, it will print or save a list of all the fonts, graphics,

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Page Layout

colors, H&J and trapping specifications, and style sheets in a document, even if the document isn't open. You can save and apply printer settings, specify custom screen angles, and adjust for dot gain. But QuarkPrint's best feature may be its ability to print nonsequential pages and to print just a specified area of a page.

Your best bet for service-bureau preparation is a little bird called Magpie (see Figure 8), which recently flew in from Show-Ads Group, an Australian developer. Magpie combines features of ColorManager, FileManager, and other service-bureau utilities into

a single XTension. It compiles a list of the fonts, graphics, and colors in a document, and it flags problems such as missing fonts or outdated images. Magpie can also gather the required files — the document, graphics, and fonts — and place them in a single folder (on a removable cartridge, if you like) for speedy transport to a service bureau or for archival purposes. No more forgetting an important EPS file or that pesky Zapf Dingbats font. If the DiskDoubler INIT is installed, Magpie will automatically compress the files as it collects them. All this, and Magpie is the

least expensive XTension of the bunch — except, of course, for Quark's freebie Prepare for Service Bureau.

Still can't find the XTension you need? There are numerous XTension developers who will be happy to fashion one for you — for a price, of course. You can reach them by calling Quark or XChange or by visiting CompuServe's DTP Forum (GO DTPFORUM), a popular watering hole for XTensioners. 

Phillip Bishop uses a mess of XTensions to produce his bimonthly journal, *CD-ROM Macintosh*. Senior editor Aileen Abernathy is frequently over-XTended.

Directory

XChange distributes all the XTensions mentioned in this article. Products listed as free are also available from on-line services such as ZiffNet/Mac, CompuServe, America Online, and AppleLink.

A Lowly Apprentice Production

Default Settings, \$39
LayerManager, \$59
NudgeIT, \$29
ViewIT, \$79

America Online

XChange

AppleLink
W.Buckingham
XChange Sampler Disk 2.0, free on-line or \$25

Baseview Products

QSpool, \$695
QXEdit, \$149

Cheshire Group

PinPointXT, \$79.50

Clearface

Kerning Palette, \$195

CompuSense

ColorManager, \$149
Dashes, \$200 per language
FileManager, \$149
Spellbound, \$200 per language

CompuServe

DTP Vendor Forum or 75300,2336

Corder Associates

Printer's Spreads, \$179

DK&A

XTension Manager, \$69.95

Em Software

Xdata 2.0, \$299
Xstyle, \$79

Equilibrium

GraphXChange, \$149

Frank Kubin

CopySpecs, \$50

Future Publishing

IndeXTension, \$99

Integrated Software

Picture Scale, \$99
Shadow, \$49
Starburst, \$49

J. Michael Marriner

Grid Layout, \$24.95

Kytek

CursorPos, \$59
SeXT, \$99

Managing Editor Software

Gatherer, \$199

Mediamatic

Mimic, \$99

Monotype

Agency Fit, Volume 1 (65 fonts), \$79
Agency Fit, Volume 2 (250 fonts), \$179

Npath Software

Tableworks 2.0, \$299
Tableworks ShortCut, \$119

Pre-Press Technologies

SpectreScan QX, \$295
SpectreSepts QX, \$495

Quark

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Free XTensions are available as a \$25 package from Quark or XChange.
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Calibration, free
Color Sets, free
Cool Blends, free
Multiple Masters Utilities, free
Plug-In XTension, free
PM Import, free
Prepare for Service Bureau, free
QuarkFreebies 3.1, free
QuarkPrint, \$195 (\$95 for QuarkXtras owners)
Son of Bob, free
WP Filter, free

Reseaux

Alias 2.0, \$189

Schnittstelle

XSize, \$169

ShadeTree Marketing

Electronic Border Tape, \$149
EBT Too, \$149
Both packages, \$249

Show-Ads Group

Magpie, \$99

Trias

VJ, \$199

Virginia Systems

Sonar Bookends 3.0, \$129.95
Sonar TOC 2.0, \$99.95

Vision's Edge

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ColorChange, \$79
CopySet, \$129
MasterMenus, \$69
The Missing Link, \$69
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Picture Tools, \$69
Resize XT, \$60
TeX Tools, \$59
Thesaurus Rex, \$69

XChange

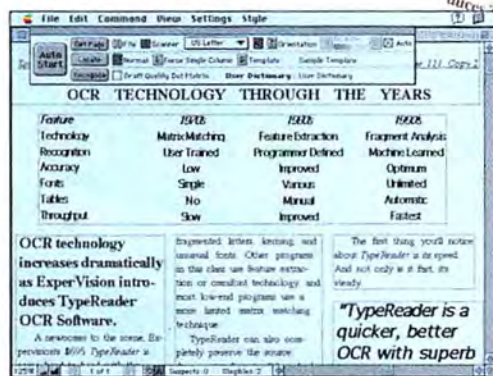
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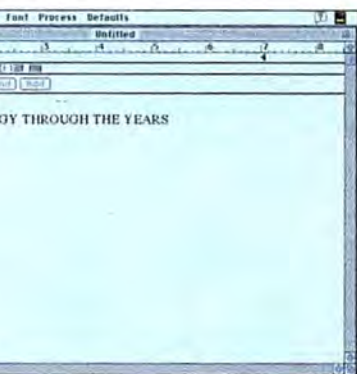
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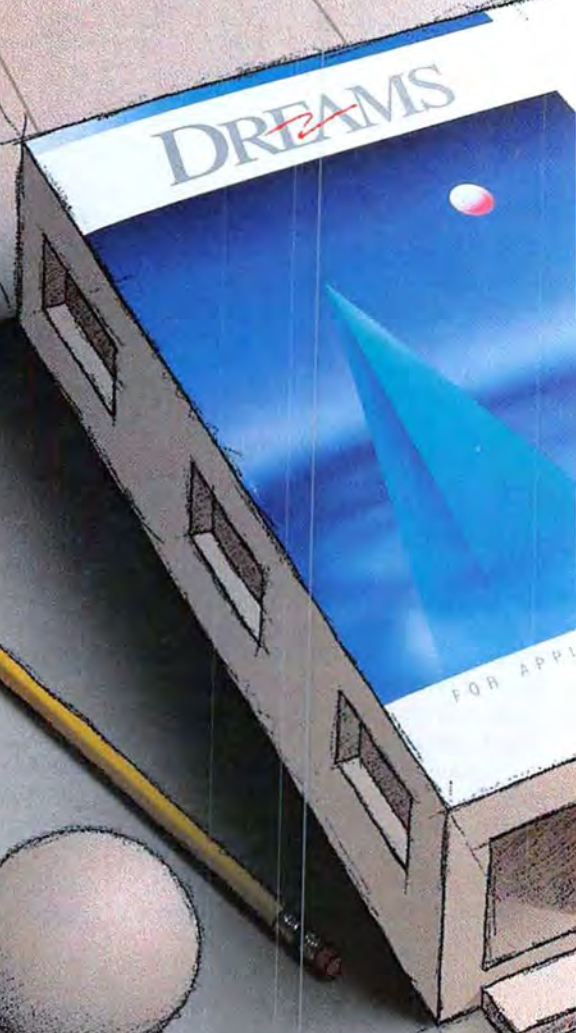
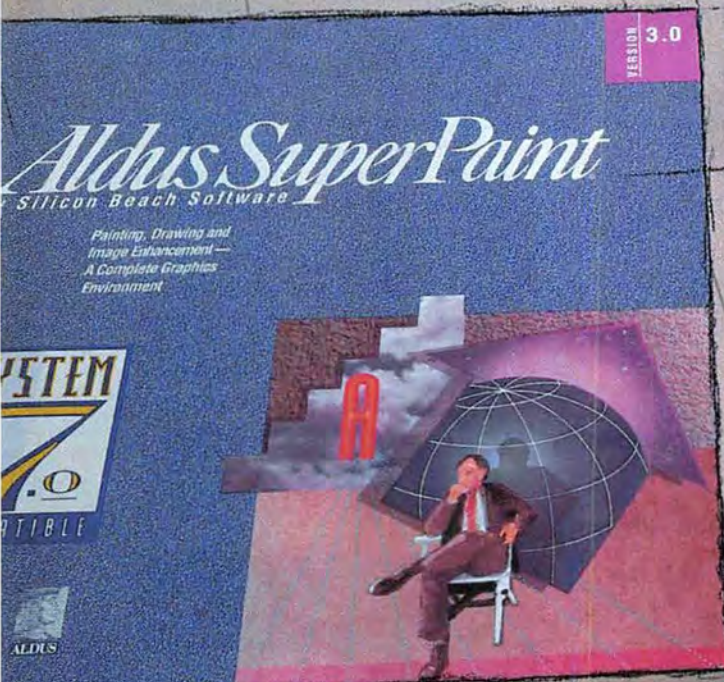
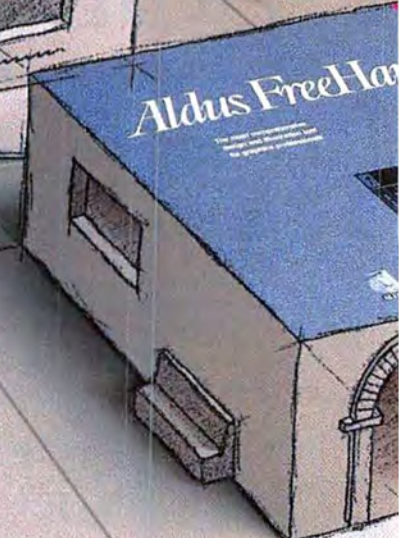
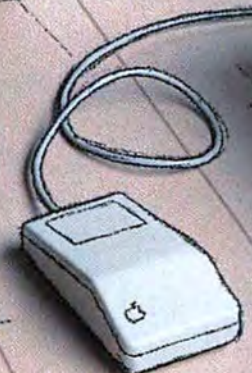
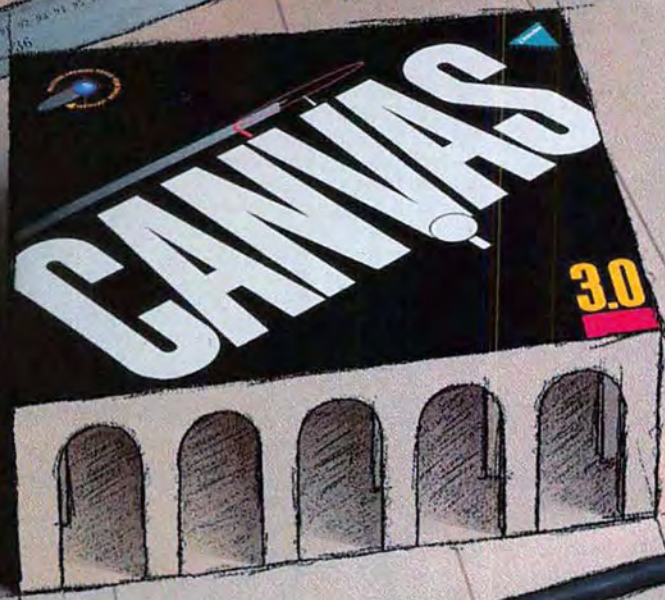
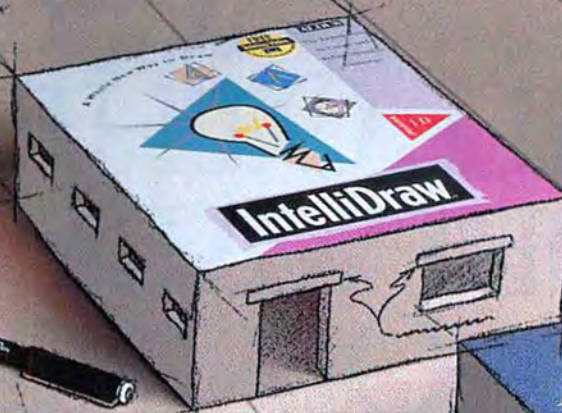
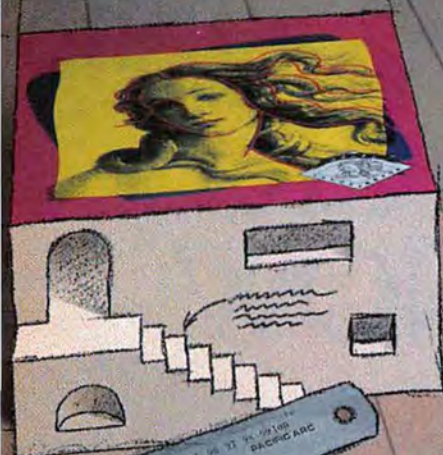
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True Perspective: Drawing Programs

When the first drawing programs appeared for the Mac, you were limited to what you could portray with imaginative use of text, simple geometric shapes and polygons, fill patterns, and lines. But as the Mac has grown more powerful and sophisticated, so have its drawing programs. The current crop of software still excels at working with simple shapes, but you'll also find tools for creating complicated drawings, from elaborate floor plans to technical illustrations and charts.

Of course, no single drawing program can be the best for every conceivable use, although some of these software Swiss-army knives have more blades than others. This month, we'll examine Illustrator 3.2, from Adobe; FreeHand 3.1, IntelliDraw 1.0, and SuperPaint 3.0, from Aldus; Canvas 3.04 and UltraPaint 1.05, from Deneba; MacDraw Pro 1.5, from Claris; CA-Cricket Draw III, from Computer Associates; Dreams 1.1, from Innovative Data Design; DeskDraw 3.08, from Zedcor; and Michael's Draw 1.0, from Event One. [At press time, Deneba had

Do you want a drawing program that's easy to use or one that's more feature-packed than a 747? We assess some rising stars and old favorites, so you can choose what you need to get that picture in your head onto your screen.

BY ERIC TAUB

Drawing Programs

just announced ArtWORKS (\$149), which the company describes as the next generation of UltraPaint. — Ed.]

In this article, we'll also look at the various tasks these drawing programs are designed to accomplish, to help you pinpoint which package or combination of packages can best meet your particular needs.

Simple Drawing

If your needs are limited to simple drawings, such as pictures with some boxed text, or lines and arrows (say, in an organizational chart), or some slightly enhanced type, you might do well with DeskDraw, a simple, inexpensive package that's reminiscent of early versions of MacDraw. The new integrated programs, such as ClarisWorks, also have drawing modules that are adequate for this sort of work. (So do some word processors, although Microsoft Word 5.0's drawing capability is so feeble that you wonder why Microsoft even bothered to include it in the program.)

All the drawing programs reviewed here provide a full complement of basic shapes and lines with arrows, although Illustrator doesn't automatically add arrows for you. Similarly, all the programs have large selections of fill patterns (except, again, Illustrator — Adobe assumes you'd rather create your own). All (except — you guessed it — Illustrator) can also, on command, align and, in most cases, distribute objects, so you can make your drawing neat and tidy with a minimum amount of clicking and dragging.

Complicated Drawing

Complicated drawings, such as very large organizational charts, floor plans, and technical illustrations, are composed of many little pieces, and dragging on the wrong piece at the wrong time can quickly lead to disaster. Fortunately, some programs go to great lengths to keep you from being overwhelmed, using layers, styles, object libraries, and smart alignment to make drawing easier.

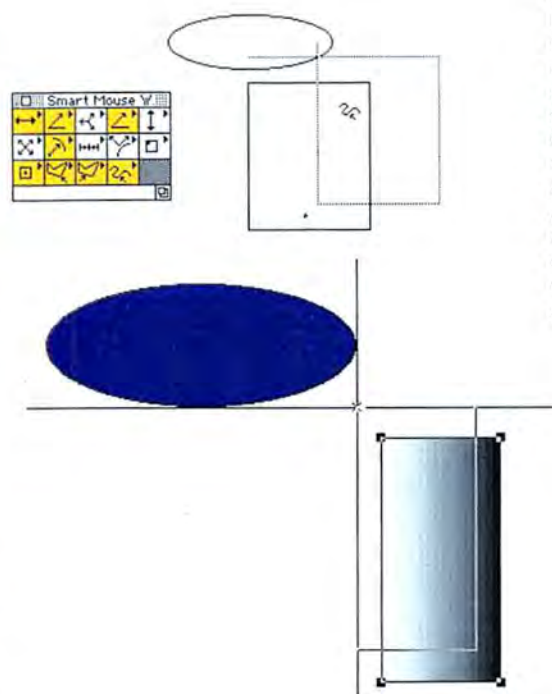


Figure 1: Canvas' Smart Mouse (top) is programmable and has far more options than IntelliDraw's simpler Auto Align function (bottom). Notice that Canvas is indicating that the corner of the rectangle is touching the edge of the ellipse; IntelliDraw is confined to recognizing alignment with corners, midpoints, and polygon points.

Layers. It's impossible to overrate the importance of layers. In multi-layered documents, you can hide some layers or all the layers except the one that contains the objects you want to work with. The fewer objects on-screen at one time, the less likely you'll

be to accidentally click on the wrong shape. Moreover, the fewer objects on-screen at any time, the faster your Macintosh can redraw the screen after each change (sluggish screen updating is a problem with every Mac drawing program).

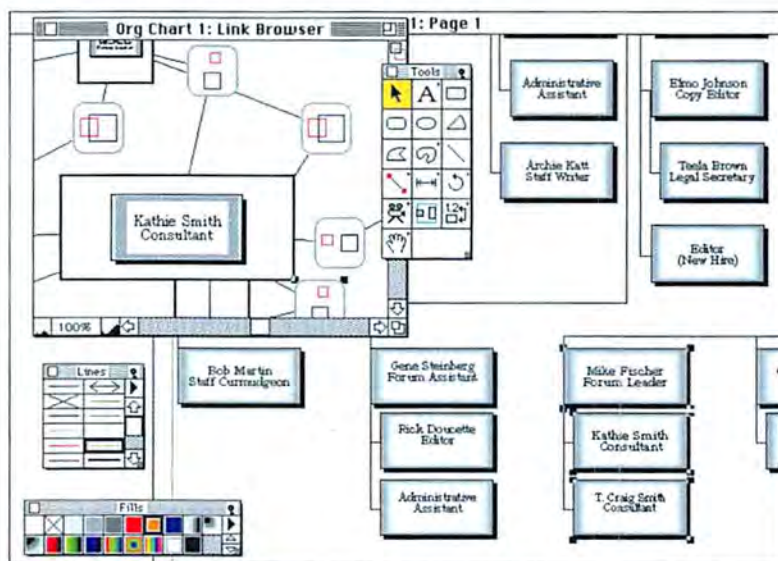


Figure 2: Move or resize any element of this IntelliDraw org chart, and every other element is automatically moved or resized to compensate.

You can also shuffle layers up and down, tint or "gray out" certain layers, or make some layers visible but nonprinting, depending on the program's capabilities. Canvas and FreeHand have the most-complete and best-designed layering options, and Canvas, Dreams, FreeHand, MacDraw Pro, Michael's Draw, and UltraPaint all have extensive layering capabilities. UltraPaint allows you to combine multiple drawing and painting layers in a document, which you can use to create some interesting effects.

SuperPaint, with its single drawing layer and single painting layer, offers little in the way of layering. Illustrator gives you the option of selecting and hiding elements, but the only way you can view them subsequently is to "un-hide" *every* element you've hidden—not the most elegant or time-saving solution.

Styles. Just as style sheets can be a tremendous time-saver in word processors or page-layout programs, styles can make it vastly easier to change and update drawings. Changing a style definition is much less work than pointing and clicking through a document, selecting and changing individual objects.

Of all the programs considered here, only FreeHand and, to a lesser degree, IntelliDraw have true styles. FreeHand lets you define both a line and a fill as part of a style. In IntelliDraw, you must define fills and lines separately, but the program automatically updates your drawing if you change the style definition. Because you define the line and fill separately, if you want to change both the line *and* the fill for a certain class of objects, you have to change one attribute and then the other, rather than do both of them in one operation.

All the other programs are either somewhat or extremely feeble when it comes to styles. With CA-Cricket Draw III, Dreams, and Illustrator, you can define custom colors that get updated wherever they're used whenever you change the color definition.

With the other programs, once you've applied an attribute to an object, there's no automatic, global way of changing that attribute, although Canvas and MacDraw Pro have semiawkward mechanisms that let you select every object that uses a particular attribute, so you can change them all in one fell swoop.

Object Libraries. If your complicated drawing is a floor plan, you'll probably want to plop down identical pieces of furniture in multiple locations. The easiest way to do that is to use an object library. Canvas, Dreams, IntelliDraw, and MacDraw Pro let you create libraries of objects. You can

you've created and positioned the objects in question. Some programs, though, go a step further and let you align objects *as* you draw them.

Canvas' Smart Mouse and IntelliDraw's Auto Align snap objects or the cursor to other objects as you draw or move objects (see Figure 1). With Canvas, as you move objects, their edges automatically jump to align with other objects that are already in your drawing.

IntelliDraw's alignment options aren't as exhaustive as Canvas', but they offer an extremely important enhancement: You can tell IntelliDraw to remember and preserve the last

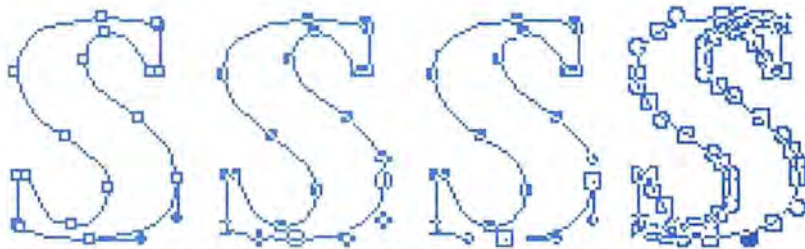


Figure 3: Here's a letter S converted to an editable outline in, from left to right, Illustrator, FreeHand, Canvas, and IntelliDraw. Unlike the other programs in this figure, which convert the type into paths with Bézier control points, IntelliDraw uses "smoothed polygon" points, which make it almost impossible to do more than the simplest modifications.

scroll through these libraries picture by picture (in Canvas, each object shows up in a menu) and copy or drag the object into your drawing.

IntelliDraw's object library takes this feature one step further: If you change one of the library objects anywhere in a drawing, IntelliDraw makes those same changes everywhere the object is used in your drawing. Although this feature is implemented elegantly in IntelliDraw, you can get the same result in any of the programs that support System 7's publish-and-subscribe: Canvas, FreeHand, Illustrator, and MacDraw Pro (and IntelliDraw, for that matter).

Smart Alignment. Except for Illustrator, every one of these programs has commands for aligning and distributing multiple objects—but the alignment always takes place *after*

alignment an object snapped to. For example, if you move a square so that its right edge aligns with the right edge of a rectangle just above it and make a permanent link based on that alignment, every time you move either the square or the rectangle, the other also moves, ensuring that alignment is maintained.

You can set up many different kinds of links among objects in IntelliDraw. You can match the size of objects, so if you make one object bigger or smaller, the others follow suit. You can also specify that a particular dimension of an object be a set amount larger or smaller than that of another object. IntelliDraw even lets you create lines that will always be linked to the vertices or midedges of other objects. With this feature, if you move a person in an organizational chart, the

Drawing Programs

line connecting him to his boss will follow suit (see Figure 2).

Dreams has a Snap to Object command that snaps the cursor to the corner or to another predefined point on a nearby object when you're dragging or creating new objects. Although this command is useful, it pales in comparison with the capabilities of Canvas and IntelliDraw.


Measuring Objects

Canvas, Dreams, IntelliDraw, and MacDraw Pro let you display measurement lines and set up custom measurement scales so that if you say that 1 inch equals 5 feet, a 2-inch line's measurement will appear as 10 feet. In these four programs, if you group measurement lines with the object being measured, the measurements will

be automatically updated whenever you resize a measured object. IntelliDraw also lets you resize measured objects by changing the value in the measurement line.

By creating links between numbers and objects in IntelliDraw, you can have a number anywhere in a document reflect a measurement of any object, making it easy to create tables

Table 1: Pros and Cons of Drawing Programs

	 Pros	 Cons	 Ideal Users
CA-Cricket Draw III	<ul style="list-style-type: none"> • Responsive pen tool. • Powerful blends for fills and drop shadows. • Gradient fills rotate with objects. 	<ul style="list-style-type: none"> • No layers. • Can't convert text to outlines. • No auto-alignment. 	<ul style="list-style-type: none"> • Graphic artists. • Beginners.
Canvas	<ul style="list-style-type: none"> • Many handy tools. • Well-designed pen tool. • Layers. • Strong typographical control. • Gradient fills. • Can import and export Illustrator 1.1 and many other file formats. • Slide-show capability. • Plays QuickTime movies. 	<ul style="list-style-type: none"> • No styles. • Few automatic features. • No auto-alignment. • Gradient fills don't rotate with objects. 	<ul style="list-style-type: none"> • Technical illustrators. • Business presenters. • Graphic artists. • Newsletter publishers.
DeskDraw	<ul style="list-style-type: none"> • Simple. • Basic tools. • Requires relatively little RAM. 	<ul style="list-style-type: none"> • No sophisticated features. 	<ul style="list-style-type: none"> • Beginners. • Occasional users.
Dreams	<ul style="list-style-type: none"> • Spare interface. • Auto line measurement. • Creates fills. • Multicolor-pattern editing. 	<ul style="list-style-type: none"> • No Pantone-color support. • Can't convert text to outlines. 	<ul style="list-style-type: none"> • Technical illustrators.
FreeHand	<ul style="list-style-type: none"> • Useful and effective styles and layers. • Many type effects. • Automatic reblending. • Places TIFF and EPS files. • Prints own separations. • Useful gradient fills. • Can convert type to outlines. • Gradient fills rotate with objects. 	<ul style="list-style-type: none"> • Awkward text-entry windows. • Sluggish screen redraw. • Can't save directly in Illustrator EPS format. 	<ul style="list-style-type: none"> • Graphic artists. • Illustrators. • Fine artists.
Illustrator	<ul style="list-style-type: none"> • Most responsive pen tool. • Extremely precise look and feel. • Graphing capability. • Best typographical control. • Object-to-object flow. • Auto text wrap inside and outside of objects. • Can convert type to outlines. 	<ul style="list-style-type: none"> • No alignment feature. • Difficult interface. • No editable preview mode. • No gradient fills. • No true layers. • No styles. 	<ul style="list-style-type: none"> • Graphic artists. • Business presenters. • Illustrators. • Fine artists.

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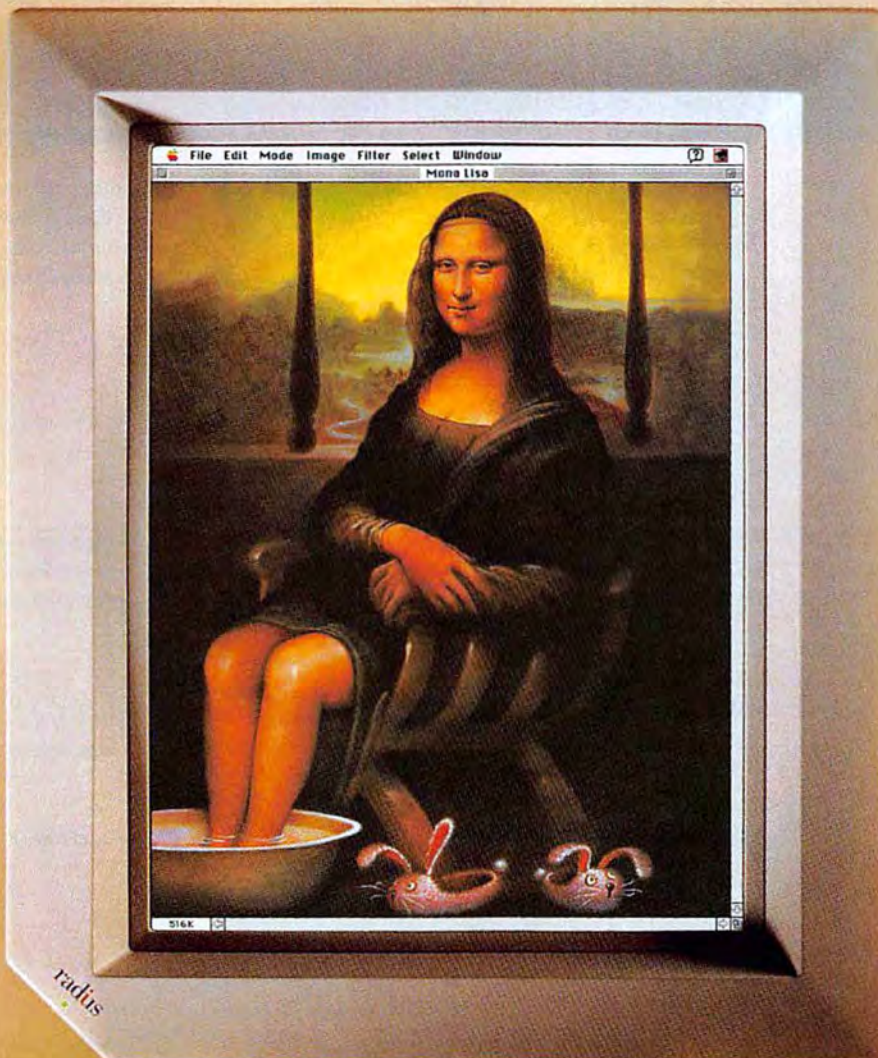
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Drawing Programs

of object dimensions that update as you change the measured objects.




Except for MacDraw, these programs' auto-alignment features make it easy to create measurement lines that align to objects you want to measure. Canvas' Smart Mouse offers the greatest control over what snaps where; Dreams' Snap to Object command gives you the least control.

Fancy Type

At one time, drawing programs were typographically unsophisticated. Today, most of them can use type with fractional character widths, and more importantly, they can use kerning-pair information that might be built in to a font file and specify leading in absolute point values (rather than just single- or double-spacing).

Canvas, FreeHand, and Illustrator have the most-sophisticated type control. With its many keyboard shortcuts for tracking, kerning, resizing, and scaling type, Illustrator allows you to fly through fine-tuning your type, even when it's set on an ellipse or other shape. Canvas also has keyboard command equivalents, but editing text on a path is clumsy. FreeHand's type

Table 1: Pros and Cons of Drawing Programs, continued

	 Pros	 Cons	 Ideal Users
IntelliDraw	<ul style="list-style-type: none"> • Extensive object-linking capabilities. • Automatically updates symbols. • Powerful Symmetricon tool. • Line and color styles. • True multipage documents. • Multicolor gradient blends. • Multiple layers. • Slide-show capability. • Animation support. • Auto-interruptible screen redraw. 	<ul style="list-style-type: none"> • Easy to duplicate and hopelessly snarl links. • Poor path editing. • Converts type to polygons, not Bézier paths. • No Illustrator 1.1 export or editable import. • Occasional sluggish performance. • Gradient fills don't rotate with objects. 	<ul style="list-style-type: none"> • Technical illustrators. • Business presenters. • Graphic artists. • Newsletter publishers.
MacDraw Pro	<ul style="list-style-type: none"> • Elegant interface. • Useful gradients. • Tolerable pen feature. • Layers. • Slide-show capability. • Plays QuickTime movies. 	<ul style="list-style-type: none"> • Limited feature set. • Gradient fills don't rotate with objects. • No styles. • No automatic features. • Can't convert text to outlines. 	<ul style="list-style-type: none"> • Beginning users. • Graphic artists. • Business presenters.
Michael's Draw	<ul style="list-style-type: none"> • Powerful scripting for creating bit-mapped images. 	<ul style="list-style-type: none"> • Cluttered interface. • Poor documentation. • No styles. • Can't convert text to outlines. 	<ul style="list-style-type: none"> • Users with image-retouching experience on the Mac.
SuperPaint	<ul style="list-style-type: none"> • Excellent gradient- and pattern-fill effects. • Useful bit-map-editing layer. 	<ul style="list-style-type: none"> • No pen tool. • No object blending. • Only two layers. • No styles. • Gradient fills don't rotate with objects. • Can't convert text to outlines. 	<ul style="list-style-type: none"> • Graphic artists.
UltraPaint	<ul style="list-style-type: none"> • Full complement of drawing tools. • Well-designed pen tool. • Multiple painting and drawing layers. 	<ul style="list-style-type: none"> • Supports only 8-bit color. • No gradients. • No styles. • Sluggish performance. • Can't convert text to outlines. 	<ul style="list-style-type: none"> • Beginning users. • Graphic artists.

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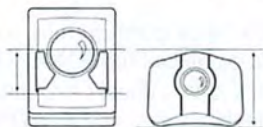


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Drawing Programs

controls rival Illustrator's, but its lack of keyboard command equivalents and clumsy text-editing windows make fine-tuning type a huge chore, because changes to kerning and tracking show up in the drawing but not in the text-editing window.

Fancier Type

For designing logos, fliers, or just about anything that uses display type, fancy type effects are essential. Only Canvas, Illustrator, IntelliDraw, and Michael's Draw let you flow text into irregularly shaped objects, and only the first two programs let you run text around other objects, although you can achieve similar results with IntelliDraw's object-combination functions. In Illustrator, text run-arounds react automatically when you move any component element; in Canvas, you must reissue the runaround command each time you move an element.

Canvas, CA-Cricket Draw III, FreeHand, Illustrator, and Michael's Draw let you bind text to a path, and they offer various justification and alignment options. But in Canvas you have to unbind and rebind the text whenever you want to change its path, and in CA-Cricket Draw, text on a path appears "greeked" on-screen. FreeHand not only lets you bind type to a path but it also lets you skew type vertically and horizontally.

FreeHand has many custom type effects, including zoom text and multiline outlines and inlines. These features alone make FreeHand a good choice for creating type-based logos. Illustrator also lets you set strokes and fills for text. Most other programs require text to be a solid color, although it can be a different color for each character.

You can achieve even more-elaborate type effects in Canvas, FreeHand, Illustrator, and IntelliDraw by converting type into editable outlines (see Figure 3). (All the programs can do this for Adobe Type 1 fonts or TrueType, except for Illustrator, which, not surprisingly, passes on



Figure 4: CA-Cricket Draw III enables you to automatically add blended drop shadows to any object (top). With SuperPaint, you can create and apply elaborate, multicolor graduated fills to one or more objects, including text. The text remains fully editable after the fill is applied (bottom).

converting TrueType.) Once you've done this, you can modify the outline of any character, use special graduated or tiled fills on the text, or use the text as a mask. Canvas, FreeHand, and Illustrator convert type into easy-to-edit Bézier curves. IntelliDraw, on the other hand, converts type into polygons with numerous on- and off-path control points that are difficult to edit properly.

SuperPaint can't convert type into outlines, but the program almost makes up for this by letting you apply extremely elaborate graduated fills to text. The graduated blends, which follow the shape of each character, look spectacular, and you can still edit the text.

Fancy Illustrations

Sometimes you'll want a program that lets you create the fanciest illustrations possible. Most of these programs include certain special tricks for creating fancy illustrations, although each program handles the tricks somewhat differently.

First, unless you'll always be happy with nothing but rectangles and ellipses, you need to be able to draw complex paths quickly and cleanly. In other words, you need a Bézier-curve-drawing tool, which usually shows up as a pen in the program's tool palette. Illustrator has a no-frills pen tool that is the most responsive — especially

for skilled users. FreeHand has a pen that behaves similarly to Illustrator's, but it also has tools for creating curve, corner, and connector points. Most FreeHand users just stick to the pen, however.

CA-Cricket Draw III and Canvas have better-designed pen tools than either Illustrator or FreeHand do, with easier controls for turning curve points into cusps, for example. MacDraw Pro, Michael's Draw, and UltraPaint have tolerable Bézier tools. Dreams' tool is weaker. With SuperPaint you have to use a freehand-drawing tool to create Bézier paths, which may or may not turn out the way you want them. In IntelliDraw you have to use the polygon tool to draw complex paths; its awkward combinations of Bézier and polygon control points makes drawing accurately almost impossible.

Fills

Another fancy effect to look for is automatic graduated fills. CA-Cricket Draw III, Canvas, FreeHand, IntelliDraw, MacDraw Pro, and SuperPaint all have variations on this theme. SuperPaint's fills are the most flexible. You can set multiple colors for any blend and apply a blend easily across multiple selected objects — even editable text. IntelliDraw also lets you set multiple colors for blends, but it has fewer varieties of blends. MacDraw Pro allows as many as four



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colors. CA-Cricket Draw III usually has only two colors, but you can specify that a blend's transition be based on page coordinates rather than simply on the object you're filling. Canvas offers a wide variety of fills but allows only two colors — start and finish — for each.

When you rotate objects in CA-Cricket Draw III and FreeHand, graduated fills rotate along with them. In Canvas, IntelliDraw, MacDraw Pro, and SuperPaint, they don't.

FreeHand, IntelliDraw, and Illustrator also let you convert any selected objects into tiled fills, which repeat over and over as they fill an object. Among the three programs, IntelliDraw's editable Tiled Groups are the best designed and the easiest to modify.

Masks and Holes

There are numerous approaches to having objects act as masks or as holes in other objects. Illustrator's masks are effective but awkward — the masked-out parts can dramatically clutter up a drawing (especially if the objects being masked are a blend of many objects that create a smooth graduated fill). FreeHand's Paste Inside command gives less cluttered results, but if you want to edit the

masked objects, you have to cut them out of their masks, paste them into the drawing, edit them, cut them again, and then repaste them into the masking shapes.

Canvas approaches masking by letting you make the topmost object in a group a cookie cutter for slicing off bits of objects below it. But this slicing is permanent, so you're in trouble if you need to change the shape of the mask later. CA-Cricket Draw III and IntelliDraw also take this approach, but if you choose, you can retain the original object in case you need to make modifications later. Dreams' tools let you slice and combine objects, but the emphasis is more on modifying shapes than on creating masking effects.

FreeHand and Illustrator also have special commands for creating compound paths, in which one object acts as a hole punched in another. With Canvas' Slice command, you can't create real compound shapes but you can make fake ones, in which one side of the object is broken by overlapping sides. CA-Cricket Draw's Hole Punch command and IntelliDraw's Subtraction Group work similarly, letting you make editable holes in objects.

The fancier drawing programs also let you blend one or more objects into

each other, creating multiple transitional intermediate objects. (This is the only way you can create graduated fills in Illustrator.) FreeHand and Illustrator can blend only two objects at a time; Canvas and IntelliDraw can blend multiple objects in one operation. If you change one of the defining objects in Illustrator or Canvas, you must delete the old intermediate objects and do the blend again. FreeHand and IntelliDraw automatically regenerate intermediate objects whenever you change any of the objects that define the blends.

Other Swiss-Army Blades

Each program has its own special features, but we have room to mention only a few highlights.

CA-Cricket Draw III is the only program to offer automatic drop shadows for any object, including lines and text (see Figure 4). Canvas' many plug-in tools, for creating cubes, spirals, grids, and more, are especially handy, as is its ability to tint objects for quick transparency effects.

IntelliDraw's Symmetricon tool, which creates complicated symmetrical objects, is also noteworthy. Its ability to link the defining points of numerous polygons lets you make drastic changes to the appearance of even the most complex illustrations quickly.

FreeHand's pen tool is especially neat. It works with a pressure-sensitive stylus and tablet, and the width of the shapes you create varies with the amount of pressure you apply.

Michael's Draw has perhaps the most unusual feature of any of these programs: You can create scripts for Michael's Draw that combine the contents of a drawing's layers, using special addition and subtraction filters (similar to those used to create special effects in image-retouching programs such as Adobe Photoshop) and so produce high-resolution bit-mapped PICT or EPS files. Unfortunately, the implementation of this feature is so peculiar and the documentation so sketchy that you would probably need to spend



Figure 5: With its spreadsheetlike function for entering or importing numbers and its custom chart styles, Illustrator makes it a snap to create elaborate graphs and charts (right). IntelliDraw makes you do a bit more of the work yourself, but lets you dynamically link numbers in your drawing to values in an external spreadsheet file (left).



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Drawing Programs

days playing with the scripting before you could figure out how to make it work.

Canvas and MacDraw Pro both support QuickTime, so you can place QuickTime movies anywhere on a layer and have a movie play as a part of a presentation. Both programs support the inclusion of sound memos as well.

Although IntelliDraw doesn't support QuickTime or sounds, it does let you create simple animations that can be triggered by on-screen buttons, so you can make simple interactive documents and presentations.

The Bottom Line

For those who can buy only one program, Canvas is a great jack-of-all-trades, but its occasional clumsiness

(manual updating of text on paths or text with runarounds, lack of styles, feature overload) makes it less than ideal for some specialized needs.

IntelliDraw, with its amazing automatic links, is ideal for structured drawing, graphing, or charting, but its clumsy drawing tools make it a poor choice for creative artwork. For that type of work, SuperPaint might be worth buying for nothing more than its ability to produce spectacular filled objects, which you can then export as EPS files to other programs that offer niceties such as real pen tools.

FreeHand's layering and styles make it great for structured or complex drawings, but you might long for a Smart Mouse or Auto Align function and might wish you could lose those wretched text-entry windows.

But FreeHand's many useful type and graphical bells and whistles make it ideal for logo creation and other artistic endeavors.

At first, Illustrator seems outclassed. Although it offers automatic graphing and superb control of type and text flow, its lack of layers and any sort of alignment command and its non-editable preview mode make creating complicated drawings in Illustrator more of a chore than it is with most of its competitors. But Illustrator's pen tool has the most responsive feel of any on the market, and Illustrator remains an ideal package if you simply want to draw elegantly with your mouse and Mac.

Eric Taub is a New York-based free-lance writer specializing in graphics and desktop publishing.

Table 2: Drawing Programs

	CA-Cricket Draw III 1.0 \$\$\$	Canvas 3.04 \$\$\$\$	DeskDraw 3.08 \$\$\$½	Dreams \$\$\$½
List price	\$249	\$399	\$199 (with DeskPaint)	\$599
Company	Computer Associates 1 Computer Associates Plaza Islandia, NY 11788 516-342-6000	Deneba Software 7400 S.W. 87th Ave. Miami, FL 33173 305-596-5644 305-273-0636 (fax)	Zedcor 4500 E. Speedway, #22 Tucson, AZ 85712 602-881-8101	IDD 1350 Mason Circle Concord, CA 94520 510-680-6818
	FreeHand 3.1 \$\$\$½	Illustrator 3.2 \$\$\$½	IntelliDraw 1.0 \$\$\$\$	MacDraw Pro 1.5 \$\$\$½
List price	\$595	\$595	\$299	\$399
Company	Aldus Corp. 411 First Ave. S. Seattle, WA 98104 206-622-5500 206-628-5737 (fax)	Adobe Systems 1585 Charleston Rd. Mountain View, CA 94039 415-961-4400	Aldus Corp. Consumer Division 9770 Carroll Rd., Ste. J San Diego, CA 92126 619-695-6956 619-695-7902 (fax)	Claris Corp. 5201 Patrick Henry Dr. Santa Clara, CA 95052 408-727-8227
	Michael's Draw 1.0 \$\$	SuperPaint 3.0 \$\$\$	UltraPaint 1.05 \$\$\$	
List price	\$99	\$199	\$79	
Company	Event One 222 Del Norte Ave. Sunnyvale, CA 94086 408-734-4358 408-734-4773 (fax)	Aldus Corp. Consumer Division 9770 Carroll Rd., Ste. J San Diego, CA 92126 619-695-6956 619-695-7902 (fax)	Deneba Software 7400 S.W. 87th Ave. Miami, FL 33173 305-596-5644 305-273-0636 (fax)	

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—Mac WEEK, June 8, 1992

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—MacUser, December 1991

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Sliding into High Gear: Desktop Slide Scanners

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BY BRUCE FRASER

Color-image scanning is part of the desktop publisher's stock in trade, and the price of color flatbed scanners has dropped significantly in the past few years. But there's a limit to the quality that flatbed scanners can produce, particularly if the end result is four-color-process printing — and even more so if the final image is sent to a high-resolution film recorder and output as a transparency for professional processing. If your scans are suffering from blown-out highlights or plugged-up shadows, you've run into the limitations of flatbed scanners. What are the alternatives if you want to move up?

High-end color trade shops use drum scanners costing upward — sometimes way upward — of \$100,000, and they must be kept constantly busy to pay for themselves. These drum scanners are not only beyond the budget of most desktop publishers, but they also demand specialized skills on the part of the operator. Fortunately, there's a middle ground: slide or transparency scanners.



Transparency scanners scan transmissive images, viewed by passing light through them rather than by bouncing light off them, as with prints. Some handle only the common 35mm-slide format; the more costly multi-format scanners can also scan 2.25-x-2.25-inch and 4-x-5-inch transparencies. For this month's report, we tested four 35mm-slide scanners: the Barneyscan CIS•3515, Leaf Systems Leafscan 35, Microtek ScanMaker 1850S, and Nikon LS-3510AF. We also looked at two multi-format transparency scanners: the Barneyscan CIS•4520RS and the Leaf Systems Leafscan 45.

All the scanners we tested use a CCD (charge-coupled device) array to record the light that passes through the slide or transparency. They accomplish this in three passes, one for red, one for green, and one for blue. Although each of these scanners exhibits strengths and weaknesses, they all provide color-image scans that a flatbed scanner would be hard-pressed to match.

What Is It About Slides?

Slides have a wider dynamic range — they have more gradations from shadow to highlight — than prints do. This means that you can produce images that contain more detail in the shadows and more texture in the highlights with a scan from a slide than with a scan from a print.

Some flatbed scanners have optional transparency-scanning attachments. However, flatbeds are designed to scan prints, not the relatively tiny area of a 35mm slide. In general, transparency scanners are capable of much higher resolution than are flatbeds, which fall in the 300- to 1,200-dpi (dot per inch) range. The lowest-resolution slide scanner we looked at, the Barneyscan CIS•3515, scans at resolutions as high as 1,000 pixels; the highest-resolution transparency scanner we tested, the Leaf Systems Leafscan 45, can scan at a maximum of 5,080 pixels.

The resolution of a transparency-scanner engine is expressed as the total number of pixels generated along the short side of the scanned image.

When you scan a 35mm slide, which has a short side measuring approximately 1 inch, the resolution in pixels is equal to the number of dpi. Multi-format scanners render larger originals at the same number of pixels along the short side, resulting in scans with a lower dpi for those images. When you increase the output size, you decrease the number of pixels per inch in the image by the same factor: A 1,000-dpi scan enlarged to twice its size yields 500 dpi, for example. Thus, your scanner's resolution sets limits on the size of the printed output.

Typically you'll need 1.5 to 2 times as many pixels per inch in the final, sized image as the line-screen frequency you use to print it with. For example, a 300-dpi flatbed scanner will let you print an image with a 150-line screen at the same size as the original or perhaps a little larger. But it won't produce enough pixels to let you blow the image up to double or triple its size. Using a slide scanner with 3,300-pixel or greater resolution, you can take an image from a 35mm

Beat of the Drum

Scans produced by the best of the current crop of transparency scanners approach the quality of those produced by high-end — and very expensive — drum scanners. Quality differences are as likely to be due to the ability of the operator as to inequalities in the hardware. But there are things that drum scanners do and transparency scanners don't that have a huge impact on throughput.

Most drum scanners perform two vital functions on the fly: sharpening (a digital simulation of improving the focus) and conversion of the color image data from the scanner's native RGB (red, green, blue) color space to the CMYK (cyan, magenta, yellow, black) color space used for four-color-process printing.

An experienced drum-scanner operator can produce at least 20 sharpened CMYK scans in an eight-hour work shift, and many routinely produce a much higher number.

The scanners we tested produce an unsharpened RGB image, which then has to be sharpened and converted to CMYK on the Mac. When we prepared our tabloid-sized scans — 55 megabytes in RGB form — for output, we found that, even using a Quadra 700 with 20 megabytes of RAM and a fairly fast hard drive, the images took at least 2 minutes to open, about half an hour to sharpen (using Photoshop's Unsharp Masking filter), another 15 or so minutes to convert from RGB to CMYK, and about 5 minutes to save as DCS-format EPS files. (Desktop Color Separation format provides five separate Encapsulated PostScript files for cyan, magenta, yellow, and black and a composite.)

Prepress production environments, whose mission in life is to keep the extremely expensive color presses constantly busy, demand the much greater throughput of a drum scanner. But for situations in which volume isn't paramount, today's transparency scanners can deliver excellent quality, providing you're prepared to wait.



With a drum scanner (rear), an experienced operator can make at least 20 tabloid-sized scans in an eight-hour shift. With a slide scanner (front) and a Mac, you'd be hard-pressed to scan, sharpen, and convert 10 slides from RGB to CMYK format in that amount of time.

Figure 1: Take It up to Tabloid



Leaf Systems Leafscan 45



Barneyscan CIS•3515

Figure 1: The higher your scanner's resolution, the more you can enlarge the scanned image for printing. Using the 5,080-pixel Leaf Systems Leafscan 45, we enlarged a 35mm image to tabloid size (11 x 17 inches). The enlarged image had approximately 462 dpi, more than enough information to create a good-quality image. The same enlargement performed with the 1,000-pixel Barneyscan CIS•3515 has visible pixels — the result of having only 91 dpi in the enlarged image.

slide all the way up to tabloid size (11 x 17 inches, or approximately 11 times the size of the original) on output with a 150-line screen (see Figure 1).

Drumming Takes Practice

Slide scanners are less expensive and easier to use than are drum scanners. With the latter, the original art is taped to a drum that rotates under the scanning elements, and the art must be attached to the drum at precisely the correct angle. If the transparency is mounted in an oil bath, which is standard practice, the operator must ensure that there are no air bubbles in the oil. Both these skills can be learned only with practice.

Lower-priced "desktop" drum scanners are beginning to appear on the market, but they're still expensive, and they require a skilled operator. With a trained staff, drum scanners, at least the full-sized models, offer major productivity advantages (see the "Beat of the Drum" sidebar).

How 'Bout Them RAMs?

If you decide to invest in a slide scanner, you need to consider some costs in addition to the purchase price. We assume you're starting with a 24-bit-color Mac, running System 6.0.5 or later, and that you have Adobe

Photoshop installed on your hard disk. (Note: Some of these scanners work with earlier system-software versions; see Table 1 for details.) The two lower-resolution scanners, the Barneyscan CIS•3515 and the Microtek ScanMaker 1850S, work with a minimum of 4 megabytes of RAM, but only barely. The others require at least 8 megabytes.

If you intend to use the full resolution of these scanners, you'll create some very large files — a tabloid-sized scan from the Leaf Systems Leafscan 45 weighs in at a hefty 56 megabytes in its RGB (red, green, blue) form and at more than 70 megabytes once it has been converted to CMYK (cyan, magenta, yellow, black) for color separations — so you'll need mass storage and plenty of it. For a dedicated scanning workstation, a Quadra 950 with 128 megabytes of RAM and one or more gigabyte (1,024-megabyte) drives is an entirely reasonable platform. You can get by with much less, but everything will take longer.

Smooth Setup

We found that setting up the scanners was in general fairly straightforward. The Barneyscan CIS•3515 uses a proprietary NuBus board and system

extension, neither of which caused any problems. The Microtek ScanMaker 1850S is a SCSI device with two SCSI ports, no termination, and an external switch for the SCSI ID; connecting it to the Mac is no more difficult than connecting a hard drive. The Nikon LS-3510AF has a SCSI-2 (the new version of SCSI, with 51 pins arranged in a much smaller connector than the original SCSI cable) and a GPIB (general-purpose interface bus) interface. We tested it with the SCSI-2 interface, using the cables supplied with the scanner. The only potential problem we could see was the lack of readily available SCSI-2 terminators — we used an external hard drive and put the scanner in the middle of the chain.

The Barneyscan CIS•4520RS uses a nonstandard SCSI connector with a T-cable adapter that has two 50-pin ports. Changing the SCSI ID is a somewhat convoluted process — it involves connecting a serial cable between the Mac's modem port and the serial port on the scanner and then using a telecommunications program to send instructions to the scanner. The manual points out with commendable understatement that it's usually easier to change the SCSI ID of one of the other devices in the chain in the case

Colorful Bits



Figure A: An 8-bit-per-color scanner can't capture subtle gradations in the dark end of the spectrum. The shadow areas break up into discrete areas of color instead of forming a smooth blend.



Figure B: When you adjust the levels to get more shadow detail, you lose smoothness of gradation through the rest of the spectrum.



Figure C: A scanner that captures more than 8 bits per color produces smooth gradations through the whole spectrum.



Figure D: You can adjust the levels to increase shadow detail, optimizing the way the 12 or 16 bits per color the scanner captures are mapped onto the 8 bits per color the Mac can display and store.

of conflicts. In fairness to Barneyscan, this same serial connection can be used to update the scanner's internal software; most other scanners require a ROM upgrade.

The remaining scanners, the Leaf Systems Leafscan 35 and 45, also have both SCSI-2 and GPIB interfaces. We used the GPIB interface, because Leaf Systems hadn't yet lined up a supplier for SCSI-2 cables. The current GPIB system extension is self-configuring, at least when the scanner is the only GPIB device present.

All the scanners include an Adobe Photoshop *plug-in* — a software module that allows you to scan from within Photoshop. Installing the software for each scanner is simple: Insert one floppy disk, and drag the plug-in icon into your Photoshop folder (more on the software in a moment).

The final step before making scans is to calibrate the scanner — that is, to

compensate for variations in the light source, filters, and CCDs. The Microtek ScanMaker 1850S is self-calibrating. The Leaf Systems Leafscan 35 and 45 and the Nikon LS-3510AF require users to click on a button but don't require the use of a calibration target. Both Barneyscan scanners require users to click on a button and insert a special calibration target — a slide for the CIS•3515 and a machined metal plate for the CIS•4520RS. We found that the Barneyscan scanners took longer to calibrate than the other scanners did and that the CIS•3515 needed frequent recalibration. We were concerned about the durability of the CIS•3515's calibration slide. Barneyscan will replace the slide if it gets damaged, but that may be small comfort if you're up against a critical deadline.

Overall, the quality of these scanners' Photoshop plug-ins is much

higher than those of flatbed-scanner plug-ins. The slide-scanner plug-ins offer much more control over the scan, and they also have better auto-exposure tools, so it's actually easier to get good scans. Most of the slide scanners capture more information than a 24-bit-color Mac can store — they capture 36 or even 48 bits of color information per pixel (12 or 16 bits per color), so the controls let you modify the tonal curve of the scan and thereby optimize the way the 36 or 48 bits of color information are sampled down to 24 bits (see the "Colorful Bits" sidebar).

Prescan

Each scanner performs a prescan and then lets you make adjustments based on the prescan image: All the models we tested provide for cropping, output-resolution control, exposure control, and gamma adjustment.

Most flatbed color scanners capture 24-bit color — 8 bits each of red, green, and blue information. Some of the slide scanners we looked at capture 36- or even 48-bit color (12 or 16 bits per color). Because Apple's QuickDraw imaging scheme uses 24-bit color, these scans must be sampled down to 8 bits per color before the Mac can read them. So why scan more bits?

An 8-bit scan contains 256 shades each of red, green, and blue. But scanners have a different response to light and shade — a different *gamma curve* — than does the human eye or a printing press. You can use *gamma correction* to bring out more gradations in the shadow, but if you change the gamma too much, the midtones and highlights become *posterized*, showing obvious jumps between shades rather than a smooth progression.

With 12 or 16 bits per color available, you can optimize the way the data is sampled down to 8 bits. The scanner performs a prescan that lets you adjust the gamma *before* the scan. The data that reaches your Mac contains only 8 bits per color, but the way the tonal information has been spread across those 8 bits allows you to preserve detail in both highlights and shadows without compromising the midtones.

The Barneyscan CIS•3515 and CIS•4520RS give a gray-scale preview, whereas all the other scanners give color previews. Only the Microtek ScanMaker 1850S and the Nikon LS-3510AF offer zooming in the preview so that you can check fine detail or set the cropping frame accurately. Leaf Systems' scanning software has a resizable window that gives the Leaf Systems Leafscan 35 and 45 a larger preview image than the other scanners offer.

The scanners provide a variety of controls for setting the exposure automatically. The Leaf Systems Leafscan 35 and 45, Microtek ScanMaker 1850S, and Nikon LS-3510AF let you select an area of the image upon which to base the exposure settings. The Leaf Systems Leafscan 35 and 45 and the Microtek ScanMaker 1850S allow you to set a white point and black point. Barneyscan's QuickScan software

relies on the white-point/black-point method but with a twist: Where other software provides a tool that you use to click on the lightest point of the preview image to set the white point and on the darkest point to set the black point, QuickScan gives you interactive help in doing so. When you move the white-point cursor across the image, all the pixels that are lighter than the one under the cursor appear red; move the cursor until no more red points show, unless you deliberately want to "blow out" some of the highlights. Likewise, with the black-point cursor, you move the cursor until almost all the image is red — you set the black point at the darkest point at which you want detail in the image. This technique is very easy to master and goes some way toward compensating for the Barneyscan scanners' lack of a color preview.

Auto-focus is available on all the scanners except for the Barneyscan CIS•3515, which has a cumbersome focus method that involves watching numbers flash by on-screen as you turn a thumb wheel on the scanner. The highest number is supposed to produce the best focus possible.

The Nikon LS-3510AF's manual-focus routine lets you select an area of the prescan, which then appears blown up in the prescan window. You move the lens in its smallest possible increments and view the effect on the image on-screen. We were able to substantially improve the focus over that returned by the auto-focus, so much so that the 3,175-pixel Nikon scanner actually resolved detail as fine as did the 5,080-pixel Leaf Systems Leafscan 45 and substantially better than the 4,000-pixel Leaf Systems Leafscan 35.

It's About Time

In our speed tests, the Nikon LS-3510AF turned in the fastest time, taking a little more than a minute and a half to scan a 35mm slide at 1,000 pixels. The Barneyscan CIS•3515 was next, at a little less than two minutes. The Leaf Systems Leafscan 35 and 45

On the Horizon

Several scanners appeared too late to be included in this round of testing. One, the mira•35, from Santos Technology, promises to heat up the action at the lower end of the price scale. This \$2,695 SCSI-based slide scanner scans both positive and negative 35mm transparencies at resolutions as high as 2,700 pixels and captures 10 bits of information per color. With a small footprint of 7 x 11 x 4.5 inches, the mira•35 features auto-focus; automatic-exposure settings based on a prescan; and scanning times of less than three minutes for a full-frame, full-resolution scan. Santos Technology, Inc., 383 Van Ness Avenue, Suite 1604, Torrance, CA 90501; 310-320-8888.

Optical focusing is the unique feature offered by the Macsie 35, a 2,167-pixel 35mm slide scanner from Hasselblad Electronic Imaging AB, a subsidiary of Swedish camera maker Victor Hasselblad AB. The Macsie 35 has film holders for mounted and unmounted slides and includes a special glass plate for gel mounting — particularly useful with scratched film. An external optical tube threads into the film holder in such a way that its plane of focus is the same as the scanner's. To focus the scanner, you adjust the film plane via a screw on the film holder while viewing the slide through the optical tube. Once you've adjusted the focus, you place the film holder on the scanner. Hasselblad claims that this focusing method, when combined with the scanner's high-quality Carl Zeiss optics, results in ultrasharp scans. The \$12,400 Macsie 35 captures 12 bits of information per color and features a GPIB interface. For information, contact Victor Hasselblad, Inc., 10 Madison Road, Fairfield, NJ 07004; 201-227-7320.

Imaging giant Eastman Kodak recently introduced the RFS 2035, a 10-bit-per-color, 2,000-pixel 35mm scanner that produces a full-resolution, 18-megabyte scan in less than two minutes or a 1,000-dpi, 4.5-megabyte scan in approximately 33 seconds. The SCSI-based RFS 2035 will be sold by Kodak electronic-imaging dealers and value-added resellers for \$7,995. Eastman Kodak, 343 State Street, Rochester, NY 14650; 800-242-2424 or 716-724-6888, ext. 77.

How We Tested

To test the six transparency scanners, we connected each to a Quadra 700 with 20 megabytes of RAM, a PLI Seagate ST41600N 1-gigabyte hard drive, a 13-inch AppleColor High-Resolution RGB monitor driven by a SuperMac Thunder/24 video board, and SuperMac's SuperMatch monitor-calibration package. We used Adobe Photoshop 2.0.1 to save the scanned images as Photoshop files (each scanner came with a Photoshop plug-in).

For our speed tests, we scanned a 35mm slide at 1,000 pixels. We scanned the image three times on each scanner and found each scanner's times to be quite consistent. To test color quality, we scanned an industry-standard Kodak Q-60 color reference target, which contains swatches of saturated color at different hues. We took RGB values for the color swatches in the target and converted them to CIELAB values. (CIE color spaces are an internationally accepted method of objectively describing

color.) We plotted the results as CIE a^*b^* gamut plots to give us an accurate picture of the scanners' relative gamuts.

To check for *noise* (artifacts not in the original image) and *drift* (inconsistency from scan to scan), we scanned the same image with identical settings twice, ten minutes apart, and then subtracted one image from the other, using Photoshop's Subtract command. None of the scanners exhibited significant problems in these areas. We also scanned an Air Force Resolution Target, a slide containing progressively finer line pairs, to check the scanners' resolving power and focus.

Finally, we scanned a challenging real-world image (see Figure E) at several resolutions, depending on the capabilities of the scanner, and output the results to 3M Matchprints. An expert jury, which included the photographer of the image, evaluated the results.

Focus

Can you read the lettering on the tire-pressure gauge and on the cuff of the glove?

Metallic Highlights

Can the scanner reproduce this highlight without blowing out the detail on the crank arm?

Shadow Detail

The underside of the shoe produces a challenging shadow pattern.



Saturated Reds

The challenge was to reproduce the ridges in the bottle and the wrinkles in the gloves.

Neutral Background

The pale-gray textured background tests the scanner's ability to render neutral tones.

Flesh Tones

How well does the scanner represent deceptively simple skin colors?

Figure E: Our photographer created a veritable cornucopia of stumbling blocks to put our scanners through their paces.

Figure 2: What's the Difference?



Barneyscan
CIS-3515



Barneyscan
CIS-4520RS



Leaf Systems
Leafscan 35



Leaf Systems
Leafscan 45



Microtek
ScanMaker 1850S



Nikon
LS-3510AF

Flesh tones: The Nikon LS-3510AF did the best job of rendering flesh tones. The Microtek ScanMaker 1850S produced too much red, and the other scanners paled in comparison.



Barneyscan
CIS-3515



Barneyscan
CIS-4520RS



Leaf Systems
Leafscan 35



Leaf Systems
Leafscan 45



Microtek
ScanMaker 1850S



Nikon
LS-3510AF

Light and shadow: The Leaf Systems Leafscan 35 and 45 captured more shadow detail than the other scanners did.



Barneyscan
CIS-3515



Barneyscan
CIS-4520RS



Leaf Systems
Leafscan 35



Leaf Systems
Leafscan 45



Microtek
ScanMaker 1850S



Nikon
LS-3510AF

Focus: The Nikon LS-3510AF's manual focus provided clarity that surpassed even the higher-resolution Leaf Systems Leafscan models as well as the lower-resolution Barneyscan CIS-3515, Microtek ScanMaker 1850S, and Barneyscan CIS-4520RS.

and the Microtek ScanMaker 1850S each took between three and four minutes. The Leaf Systems scanners allow you to set the exposure controls to get a faster scan at the expense of some quality, if speed is absolutely critical.

The Barneyscan CIS-4520RS took more than nine minutes to scan the image. Once you've set the exposure, however, the rest of the scanning takes place entirely in the scanner. Barneyscan's software calls this scanning in the background, but a more accurate description would be scanning off-line — the Mac isn't involved in the process at all. This makes it possible

for an operator to work on one image while scanning another, so the total throughput can easily equal that of the other scanners.

Image Quality

Although a quick scan is a convenient scan, speed is not as important as the quality of the scanned image. We examined the scanners' color performance in two ways: First, we scanned a Kodak Q60 color target to determine the color *gamut*, the range of possible colors, of each scanner. Then we scanned a challenging real-world image, created especially for this test, and printed the results as 3M

Matchprints, a prepress proofing standard (see the "How We Tested" sidebar and Figure 2 for details).

The Microtek ScanMaker 1850S had the widest gamut, but it was also noticeably uneven: Some hues, particularly the dark blues, were shifted toward the purple. The saturated colors were very saturated, but the scan had extremely high contrast, with little detail in the midtones. Postprocessing corrected this, but only at the expense of losing detail in the shadows and highlights. We feel that the Microtek ScanMaker 1850S is of only limited usefulness for prepress work, although in fairness, it's unreasonable to expect

a \$2,000 scanner to equal the performance of units costing several times as much.

The Barneyscan CIS•3515's gamut showed a slight bias toward the reds, with orange hues considerably shifted toward the red. It delivered respectable performance in the real-world image test but showed deficiencies in shadow detail. Its relatively low resolution also limits the final output size — enlarging the 35mm original much beyond 5 x 7 inches produced visible pixels in the printed image.

The Nikon LS-3510AF had a rather narrow but well-balanced gamut, and the real-world images were quite impressive. Shadow detail was a problem here too, though. On the plus side, it did the best of all the scanners on flesh tones, produced a very sharp scan when we used manual focus, and had high enough resolution to take the image all the way to full-bleed tabloid size. Still, we had expected something more from a 12-bit-per-color scanner in its price range.

The Barneyscan CIS•4520RS had the narrowest gamut of all the scanners, but it was very well balanced. In

the real-world image test, it reproduced the most accurate color of all the scanners, and although the images looked suspect on the screen, with obvious noise in the shadow areas, the printed output was excellent.

Barneyscan's thorough understanding of the print process is further demonstrated in its Color Access separation software, included with the scanner. It produces far better separations than those made with Adobe Photoshop. The Color Access separations produced a lighter black plate, resulting in better shadow detail, and handled saturated reds much better than Photoshop. As a print scanner, the CIS•4520RS' main limitation is its relatively low 2,000-pixel resolution, which effectively limits the output size to 8 x 10 inches. The scanner's limited gamut also makes it less than ideal for those who want to send the images out to a film recorder to make chromalines — the dynamic range of the scanner engine just isn't sufficient.

The Leaf Systems Leafscan 35 and 45 clearly have the best scanning engines. They have virtually identical color gamuts, wide and well balanced,

a fact reflected in the high quality of the real-world images they produced in our tests. They captured more shadow detail than any of the other scanners we tested. In fact, each Leaf Systems scanner captured more color information than Photoshop could comfortably handle — the strong reds in the gloves and the water bottle of our test image came out as flat, textureless blobs in the Photoshop separations (see Figure 3). When we ran the same images through Barneyscan's Color Access software, the results were much better — the Leaf Systems Leafscan 35's and 45's images were the best of all, and the scanners' high resolution made it possible to enlarge a 35mm slide to full-bleed tabloid size comfortably.

The only drawbacks of the Leaf Systems Leafscan 35 and 45 are their lack of a visual focusing mechanism, which would almost certainly produce sharper scans than any auto-focus algorithm, and the need for top-quality separation software. Photoshop, although an excellent image-editing tool, just doesn't cut it as a separation utility at this quality level.

Figure 3: Trial Separation



Adobe Photoshop



Barneyscan Color Access

Figure 3: We produced two sets of color separations — one in Adobe Photoshop, another with Barneyscan's Color Access separation utility — from the same scan. Barneyscan's software handled the saturated red in the gloves much better, reproducing wrinkle detail that was invisible in the Photoshop separations.

Don't be fooled by more expensive slide scanners.



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The Bottom Line

We have good news for desktop publishers: You can scan color images at drum-scanner quality for a lot less than drum-scanner prices — although also at a lot less than drum-scanner speeds. Each of the slide scanners we tested for this report has strengths and weaknesses. So which one should you buy? That depends on your budget, how much work you have to do, and how you plan to use your scanned images.

For those who want to send scanned images back out to transparencies, using a film recorder, the **Leaf Systems Leafscan 35** (\$9,995 list, \$9,732 street) and the **Leaf Systems Leafscan 45** (\$14,995 list; street price not available at press time) are the best choices. The Leaf Systems Leafscan 35 handles 35mm format only, whereas the Leaf Systems Leafscan 45 also scans 2.25-x-2.25-inch and 4-x-5-inch formats. And the Leaf Systems Leafscan 45 offers higher resolution on 35mm originals: 5,080 pixels compared with the Leaf Systems Leafscan 35's 4,000 pixels. These scanners have the best engines and the widest color gamuts of all the units we tested.

The **Barneyscan CIS-4520RS** (\$29,995 list, \$28,080 street) is very much a prepress scanner. Although it's the slowest of the scanners we tested, most of the scanning takes place off-line, so you can use your computer to separate one image while another is being scanned. The CIS-4520RS' on-screen images sometimes look bad, with noticeable noise in the shadow areas, but the final printed results are unfailingly excellent. Barneyscan has done a fine job of matching the scanner's fairly small gamut to that of the printed output.

The **Nikon LS-3510AF** (\$11,316 list, \$10,017 street) was the fastest scanner in our tests. With the optional auto-feeder (\$5,375 list), it can turn the Mac into a highly productive scanning workstation, and its 3,175-pixel resolution is high enough to take a 35mm slide out to tabloid size in medium-quality print jobs. The auto-focus never equaled the results we obtained by adjusting the focus manually, however. If volume is important,

the LS-3510AF will deliver good if not outstanding results, fast.

The **Microtek ScanMaker 1850S** is an excellent unit for the price (\$2,199 list, \$1,663 street). It's the easiest of all the scanners to use — calibration and focus are automatic, so you simply load a mounted slide and start scanning. It isn't up to prepress work, though. It had the most pronounced color cast of all the scanners we tested, and its 8 bits per color yielded much less shadow detail than the 12- and 16-bit-per-color scanners. It should serve well for FPO ("for position only") work or for multimedia presentations, where a computer monitor is the final output destination.



The **Microtek ScanMaker 1850S** (center) provides easy color input for video or FPO work at an excellent price; you'll pay more for the prepress quality of the **Leaf Systems Leafscan 45** (left) and the **Barneyscan CIS-4520RS** (right).

Accentuate the Negative

To test each scanner's capabilities fully, we also scanned a color negative of the test image. The **Microtek ScanMaker 1850S** makes no provision for scanning negatives, and even though **Barneyscan's** software supports negative scans, strip-film holders were not provided with our test units. (Customers who purchase the CIS-4520RS today should receive a strip-film holder.) The **Leaf Systems Leafscan 35** and **45** and the **Nikon LS-3510AF** arrived with the necessary film holders, and their software supports negative scanning, so we scanned negatives on these three units.

Although the results weren't stellar on any of the scanners, the 16-bit-per-color **Leaf Systems Leafscan** scanners did a much better job of stripping away the orange mask of the negative than did the 12-bit-per-color **Nikon**

scanner. All three scans had an obvious cyan cast but one that was correctable. After correction, however, the **Nikon LS-3510AF** scan was washed out in comparison with the **Leaf Systems Leafscans'**, which still had a good tonal range, with detail in both shadows and highlights. If you need to scan negatives, the **Leaf Systems Leafscan** scanners are the best choice. For the best results, though, we recommend investing a few dollars in making a positive — you'll get a much better scan with less work.

Point-and-Click

Today's desktop publishers have many color-input choices, from inexpensive flatbed scanners to professional drum scanners costing much more than \$100,000. Slide scanners occupy a large chunk of the middle ground, with models ranging from a

little more than \$2,000 to a little less than \$30,000. If you need to scan 30 or more images a day, a high-end drum scanner — whether your own or one at the neighborhood service bureau — may be in order. But for lower-volume work, a slide scanner can provide comparable quality at a fraction of the cost. And it's almost as simple as point-and-click.

Each of the slide scanners we tested has its uses. The only one we would not recommend is the **Barneyscan CIS-3515**, not because it's egregiously bad but because it's outdated. Slide-scanning technology has advanced since this scanner first appeared. You'll find our opinions on which scanner is best suited to which job in "The Bottom Line."

Bruce Fraser is a *MacUser* contributing editor who scans slides with verve and finesse.

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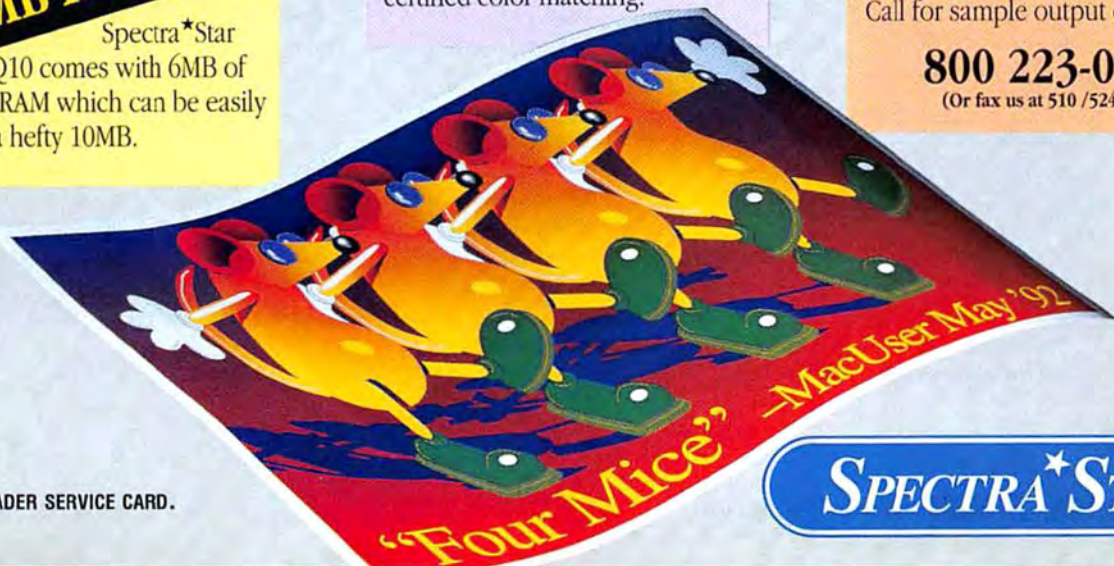
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Table 1: Features of Slide Scanners

				
● = yes ○ = no	Barneyscan CIS-3515 †††	Barneyscan CIS-4520RS ††††	Leaf Systems Leafscan 35 ††††	Leaf Systems Leafscan 45 ††††½
List price	\$4,495	\$29,995	\$9,995	\$14,995
Street price	\$4,163	\$28,080	\$9,732	not known*
Pros	Good image quality.	Excellent prepress quality. Color Access separation software bundled.	Excellent film-output quality. Good shadow detail and color. Best hardware.	Excellent film-output quality. Good shadow detail and color. Best hardware.
Cons	Needs frequent recalibration. No FCC certification.	Big and fairly expensive. No manual focus. No FCC certification.	No manual focus.	Big. No manual focus.
Specifications				
Min. system version, RAM	6.0.5, 4 MB	6.0.5, 8 MB	6.0, 8 MB	6.0, 8 MB
Resolution	1,000 pixels	2,000 pixels	4,000 pixels	5,080 pixels
Bits per pixel	24 bits	36 bits	48 bits	48 bits
Calibration method	manual with target	manual with target	manual	manual
Focus method	manual	auto	auto	auto
Interfaces	proprietary NuBus	SCSI	GPB, SCSI-2	GPB, SCSI-2
Negative scan	yes	yes	yes	yes
Film formats	35mm	35mm, 2.25-x-2.25-inch, 6-x-7cm, 4-x-5-inch	35mm	35mm, 2.25-x-2.25-inch, 4-x-5-inch
Film holders	mounted	mounted, unmounted, rotation, strip film†	mounted, strip film	mounted, unmounted, rotation, strip film
Preprocessing				
Photoshop plug-in	QuickScan	QuickScan	MacLeafScan 2.0	MacLeafScan 2.0
Color preview	○	○	●	●
Input-resolution control	○	○	○	○
Preview zoom	○	○	○	○
Other				
UL listing	○	○	●	●
FCC certification	none	none	Class A	Class A
Warranty	90 days	1 year	90 days	90 days
Power consumption	100 watts	150 watts	200 watts	200 watts
Dimensions (L x W x H)	7.75 x 8.75 x 15.5 in.	29 x 23 x 12.5 in.	14 x 10 x 19 in.	16 x 16 x 29 in.
Weight	21 lb	75 lb	30 lb	75 lb
Company	Barneyscan P.O. Box 14467 Oakland, CA 94614 800-426-5674 510-562-2480 510-562-6451 (fax)	Barneyscan P.O. Box 14467 Oakland, CA 94614 800-426-5674 510-562-2480 510-562-6451 (fax)	Leaf Systems, Inc. 250 Turnpike Rd. Southborough, MA 01772 508-460-8300 508-460-8304 (fax)	Leaf Systems, Inc. 250 Turnpike Rd. Southborough, MA 01772 508-460-8300 508-460-8304 (fax)

*The list price dropped as we went to press; the street price was not available yet.

†Our test unit did not include a strip-film holder.

Five reasons to purchase a Nikon Scanner from Ken Hansen Photographic

1



The legendary Nikon LS-3510AF film scanner brings images into your computer at over 3000dpi. More importantly, built-in logic controls focus and color balance for negatives or transparencies to provide consistent repeatable results. Nikon precision engineered optics set the LS-3510AF apart from other desktop scanners. Making a great scanner is just not good enough for today's imaging needs. That's why Nikon has built a complete system to go beyond basic image input.

2



For starters, Nikon offers an automated bulk feeder for the LS-3510AF. This accessory can scan up to 300 images unattended! Plus Nikon now offers Nikon Image Access, image storage and management software. This powerful combination is unmatched in the industry.

3



With natural color rendition, high speed, and high resolution, the CP-3000D digital thermal printer is a perfect companion to the LS-3510AF scanner. The Nikon CP-3000D saves on per print costs since it uses affordable 5X7" media. Color, black & white, or transparency media are available for a variety of applications. Plug-in software that allows for precise color calibration is included.

Beyond Nikon's already complete options, we at Ken Hansen Photographic have engineered our own additions to the Nikon Scanner. Our custom adaptors allow you to utilize medium format strip films for the highest possible image quality. Our view camera retrofit kits enable your photographer to give you full perspective control, while using low cost medium format films.

4



5



With over 15 years of experience, Ken Hansen Photographic takes a no nonsense approach to electronic imaging sales by providing real solutions to your imaging problems. We are an authorized Apple VAR that specializes in complete digital photography system solutions. Our showroom highlights all major brands of imaging gear, so you can test and compare systems with the help of our salespeople. From there, you can rent, buy, or lease to own the system that fits.



Don't miss Nikon's Macintosh Image Management Seminar on Saturday November 7th at Apple's New York Market Center. Fax us the lower portion of this ad along with your address for free admission and additional product information.



Ken Hansen Photographic

920 Broadway, NY, NY, 10010 Phone: (212) 673-7536 Fax: (212) 473-0690

Table 1: Features of Slide Scanners, continued



● = yes ○ = no	<div>   </div>	
	Microtek ScanMaker 1850S \$\$\$%	Nikon LS-3510AF \$\$\$\$
List price	\$2,199	\$11,316
Street price	\$1,663	\$10,017
Pros	Inexpensive and easy to use. Good for FPO work. FCC Class B certification.	User-friendly manual. Good, fast prepress scanner.
Cons	Not up to prepress quality. No manual focus.	User-unfriendly software.
Specifications		
Min. system version, RAM	6.0.2, 4 MB	6.0, 8 MB
Resolution	1,850 pixels	3,175 pixels
Bits per pixel	24 bits	36 bits
Calibration method	auto	manual
Focus method	auto	auto/manual
Interfaces	SCSI	GPIO, SCSI-2
Negative scan	no	yes
Film formats	35mm	35mm, 40mm (Super Slide)
Film holders	mounted	mounted, strip film
Preprocessing		
Photoshop plug-in	ScanMaker 2.0.1	Nikon Driver 3.0
Color preview	●	●
Input-resolution control	●	●
Preview zoom	●	●
Other		
UL listing	●	●
FCC certification	Class B	Class A
Warranty	1 year	1 year
Power consumption	144 watts	144 watts
Dimensions (L x W x H)	13.75 x 9.5 x 6.75 in.	14.41 x 11.3 x 5.86 in.
Weight	15 lb	13.2 lb
Company	Microtek Labs, Inc. 680 Knox St. Torrance, CA 90502 800-654-4160 213-321-2121 310-538-1193 (fax)	Nikon Electronic Imaging 1300 Walt Whitman Rd. Melville, NY 11747 800-526-4566 516-547-4355 516-547-0305 (fax)

Table 1 Criteria

List price — The vendor's suggested retail price for the scanner in its standard configuration.

Street price — The average price of the scanner at dealers or through mail order across the U.S. in August of 1992.

Min. system version, RAM — The earliest Mac system-software version with which the scanner can operate and the minimum amount of on-board RAM, in megabytes, that is required for processing images in the CPU.

Resolution — The resolution of the scanner engine, in pixels.

Bits per pixel — The number of bits of color information used to describe each pixel. Divide this number by 3 to determine bits per color (red, green, and blue).

Calibration method — Whether the scanner's calibration method is automatic (no user action is necessary), manual (the user must click on a button), or manual with target (the user must click on a button and insert a target).

Focus method — Whether the scanner provides automatic focus of the scanner lens, allows users to focus manually, or offers users both options.

Interfaces — The ports on the scanner for connecting it to computers, hard drives, or other peripherals.

Negative scan — Whether the scanning software accommodates scanned negatives.

Film formats — The sizes of slides or transparencies the scanner can accommodate.

Film holders — The types of transparency media — mounted, unmounted, rotation, strip-film — the scanner accommodates at input.

Photoshop plug-in — The Photoshop plug-in supplied with the scanner.

Color preview — Does the scanner provide a color preview?

Input-resolution control — Can the user adjust the scanner's resolution at input?

Preview zoom — Does the software provide zooming to view details in the prescan?

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Macintosh Computer Type	19"-21"	16"-17"	Apple 13"	VGA	19"-21"	15" Portrait	19"-21"	15" Portrait	Apple 12"
Classic & Plus (in black & white)			◆	◆		◆	■	◆	◆
SE (in black & white)			◆	◆	◆	◆	◆	◆	◆
LC & LCII	◆	◆	◆	◆	◆	◆	◆	◆	◆
SE/30 & IIsx	◆	◆	◆	◆	◆	◆	◆	◆	◆
Quadras and II-family	◆	◆	◆	◆	◆	◆	◆	◆	◆
PowerBooks & Classic II		■	■	■		■	■	■	■

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MINIFINDERS

MiniFinders is a comprehensive directory of current Macintosh hardware and software products that have been reviewed and rated in *MacUser*. For this special Graphics & Design edition, we have selected only graphic-arts products of general interest and in several subcategories.

Our rating system awards from one (worst) to five (best) mice, based on each product's overall value within its category. As the state of the art changes, we continually reevaluate each product's rating. More-detailed information can be found in the issue cited in parentheses near the end of each MiniFinder entry. *MacUser* Editor's Choice Award winners are indicated with a ★, along with the year in which they received that recognition. You can get additional product information directly from vendors by circling the MiniFinder number [MF#] indicated for each product on our Reader Service card.

A HyperCard stack covering all product categories in the MiniFinders database is available on ZiffNet/Mac, our CompuServe on-line service, where you'll also find access to the complete text of *MacUser* back issues. Check the Zmac page (elsewhere in this issue) for information on how to sign up.

Product prices, hardware specifications, software features, and vendor addresses change quickly. To update the MiniFinders database of reviewed products, send written notification to MiniFinders, c/o *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404.

MINIFINDER INDEX

GRAPHICS & DESIGN (GENERAL INTEREST)	63
CAD	64
CLIP ART	66
DRAWING	68
FONTS & TYPOGRAPHY	70
MODELING & ANIMATION	72
PAGE LAYOUT	76
PAINTING & IMAGE EDITING	78
PRESENTATIONS	82

GRAPHICS & DESIGN

BannerMania **★★½**
BannerMania is a specialty graphics program that lets you print banners, bumper stickers, signs, posters, and T-shirt designs. Includes 19 custom outline fonts that scale and print at any size. Also imports Type 1 fonts. Good use of ImageWriter's limited color capabilities. Offers variety of

special effects for text manipulation, including the awesome Transmogrify command. Limited graphics import/export capabilities. Excellent manual. Version 1.0 reviewed. Requires LaserWriter or ImageWriter II. \$59.95. Broderbund Software, Inc., 500 Redwood Blvd., P.O. Box 6125, Novato, CA 94948. 800-521-6263 or 415-382-4400. (Oct '91) [MF#601]

CameraMan **★★**

CameraMan captures screens and on-screen actions and saves the resulting graphics as a QuickTime sequence, a PICS animation, or a series of PICT files. Captures 8-bit and 4-bit color as well as black-and-white images. Maximum 8-bit color capture speed is generally less than 4.5 frames per second even on the fastest Mac II-series machines. Can capture an entire screen or a designated selection. Doesn't record sound, so QuickTime movies require a separate program to mix in digital audio. Version 1.0 reviewed. Requires QuickTime. \$149. Vision Software, 3160 De La Cruz Blvd., Ste. 104, Santa Clara, CA 95054. 408-748-8411. (Sept '92) [MF#602]

Capture **★★★★**

Capture is a reliable screen-capture utility. It can capture full or partial screens either to the Clipboard or to a PICT file. Supports 8-bit and 32-bit color. Capture may have to be renamed on your Mac to avoid INIT conflicts. Version 2.0 reviewed. Version 4.0 shipping. Requires Mac Plus or later and System 6.03 or later. \$129.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. 818-991-6540. (Jan '90) [MF#603]

Cheshire **★★½**

Cheshire is an INIT that lets you copy and paste tab-delimited data into simple charts, which can be placed in a document. Many chart types are possible, typeface styles can be varied, and the charts can be modified if placed into drawing programs such as MacDraw II or DeskDraw. The only programs from which this handy utility can extract data are MacWrite II, Word, MacDraw II, and PageMaker. Version 1.0 reviewed. Requires Mac Plus or later. \$125. Abbott Systems, 62 Mountain Rd., Pleasantville, NY 10570. 800-552-9157 or 914-747-4171. (Feb '91) [MF#604]

DeskPaint and DeskDraw **★★½**

DeskPaint and DeskDraw are reasonably full-featured, 24-bit color painting and drawing programs in DA form. Flexible calibration options for vertical and horizontal rulers. Printer resolution can reach 4,000 dpi. DeskPaint has enough color controls and image-manipulating functions to satisfy any user except professional electronic artists. Version 3.03 reviewed. Version 3.08 shipping. Requires Mac Plus or later, at least 2 MB of RAM for color work, and a hard drive. \$199.95. Zedcor, 4500 E. Speedway, Ste. 22, Tucson, AZ 85712. 800-482-4567 or 602-881-8101. (Mar '91) [MF#605]

Image Analyst **★★★★**

This image-processing program

lets you identify and analyze any element of an image. Measurements and statistics can be automatically or interactively generated from TIFF or PICT files or from captured video images. Manual is well illustrated but poorly written. Easy to learn. No programming necessary. Version 7.1 reviewed. Version 8.0 shipping. Requires 68030 CPU or higher, System 6.03 or later, and at least 8 MB of RAM. \$2,000. Automatix, 755 Middlesex Turnpike, Billerica, MA 01821. 508-667-7900. (July '90) [MF#606]

Image Grabber **★★★★**

Image Grabber is an excellent DA screen-capture program. Can capture pull-down menus and convert 8- and 24-bit-color screens to 2-bit black-and-white files, saving huge amounts of memory. It has both real-time and delay modes. Captures in MacPaint and PICT formats. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 6.03 or later. \$49; site licenses available. Sabastian Software, P.O. Box 70278, Bellevue, WA 98007. 206-861-0602. (May '90) [MF#607]

Mariah **★★★★**

Formerly called PictureBase, Mariah is a powerful graphics librarian. Can store paint- and PICT-formatted items and attach keywords for later search and retrieval. Users of discontinued Curator program from Solutions, Inc., can also upgrade to Mariah. Version 1.2 PictureBase reviewed. Version 1.1.1 Mariah shipping. Requires Mac Plus or later and System 6.05 or later. \$149; upgrade from Curator, \$69. Symmetry Software Corp., 8603 E. Royal Palm Rd., Ste. 110, Scottsdale, AZ 85258. 800-624-2485 or 602-998-9106. (Sept '87) ★ '86 Eddy [MF#608]

MultiClip **★★★★**

MultiClip is a much improved version of an already good product. It lets you have as many Clipboards as your hard-disk space allows, which makes many graphics and page-layout applications easier to use. New features simplify finding an image quickly. Version 2.0 reviewed. Version 2.1.7c shipping. Requires Mac Plus or later. \$149. Olduvai Corp., 7520 Red Rd., Ste. A, South Miami, FL 33143. 800-822-0772 or 305-665-4665. (Oct '90) [MF#609]

Ofoto **★★★★**

Ofoto is one-step gray-scale scanning software that's an absolute joy to use. Powerful, intuitive interface automates the scanning process. Provides excellent image quality and works with scanners from many manufacturers.

MICE RATINGS ★ ★½ ★★ ★★½ ★★★ ★★★½ ★★★★ ★★★★★

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MINIFINDERS

relative distances. A powerful, versatile tool and a great value. Supports QuickTime and RenderMan. Version 2.01 reviewed. Version 2.31 shipping. Requires Mac II series with at least 2 MB of RAM and 8- or 24-bit video card; hard drive recommended. \$995. Dynaware USA, Inc., 950 Tower Ln., Ste. 1150, Foster City, CA 94404. 800-445-3962 or 415-349-5700. (Dec '90) ★ '90 Eddy [MF# 624]

LANDesign **★★★★**
LANDesign is versatile land-surveying software that simulates the way surveyors worked before they had Mac software to help them. All standard COGO (coordinate geometry) features are supported, and all objects can be named with both character identifiers and labels. This intelligent program is easy to use. Version 1.11 reviewed. Version 1.15 shipping. Requires Mac Plus or later; hard drive recommended. \$595; Export Module, \$300; Data Collector Module, \$325. Compunet, Inc., 113 McCabe Crescent, Thornhill, Ontario L4J 2S6 Canada. 416-738-4601. (Sept '89) [MF#625]

MiniCad+ **★★★★**
With a fast and logical interface, MiniCad+ has a Pascal-like macro language, an internal database, 2-D as well as 3-D graphics, a linked spreadsheet, and a low price. Has a MacDraw-like feel, but it may have the best 3-D capabilities among low-cost CAD programs. Good documentation. Graphsoft's tech support is helpful. A HyperCard tutorial stack is sold separately. Version 3.0 reviewed. Requires Mac Plus or later with at least 2 MB of RAM, System 6.03 or later, and a hard drive. \$795. Graphsoft, Inc., 8370 Court Ave., Ste. 202, Ellicott City, MD 21043. 410-461-9488. (Apr '91) ★ '90 Eddy [MF#626]

PowerDraw **★★★★**
PowerDraw is an easy-to-use 2-D CAD program with a host of features, including an interactive snap function that aids in geometry creation. Offers complete drawing tools and excellent control over colors, true vector-oriented patterns, and Boolean operations such as joins and intersections. Has full complement of dimensioning commands. Built-in import/export capabilities are limited to PICT files, but optional PowerDraw Translator handles a variety of graphics conversions. Includes built-in plotter driver that spools print files to disk. Version 3.0 reviewed. Requires Mac Plus or later and a hard drive. \$795. PowerDraw Translator, \$275. Engineered Software, 615 Guilford-Jamestown Rd., Greensboro, NC 27409. 919-299-4843. (Sept '91) [MF#627]

Precision **★★**
This 2.5-D CAD program has

some quirks. The Cut and Paste functions operate oddly, and many things don't work as expected. Powerful but slow. It freezes and crashes at times. When these problems are cleaned up, it should be superb. Version 1.2 reviewed. Requires SE/30 or Mac II series with 2 MB of RAM. \$295. Innovative Systems, Inc., P.O. Box 461, 143 Shaker Rd., East Longmeadow, MA 01028. 800-222-1648 or 413-525-6500. (Apr '90) [MF#628]

VersaCad **★★★★**
VersaCad is a powerful CAD program that doesn't show any of its DOS roots. Excellent element manipulation and full plotter support. Library user interface is crude. Version 1.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later. \$1,995. Computer-View (Personal CAD/CAM Business Unit), 100 Crosby Dr., Bedford, MA 01730. 800-488-7228 or 617-275-1800. (July '88) ★ '88 Eddy [MF#629]

CLIP ART

650 Megabyte Clip-Art Disk

★★
The 650 Megabyte Clip-Art Disk is a CD-ROM containing 182 scanned TIFF images and 886 mostly color EPS files in Adobe Illustrator 88 format. EPS graphics are of amateur quality; TIFF files are more useful. The quality of the scans is adequate, but many of the images are marred by washed-out colors or are too dark to be useful. \$499.95. Media Clip-Art, Inc., 411 Narragansett Dr., Cherry Hill, NJ 08002. 609-795-5993. (Sept '90) [MF#630]

Artbeats **★★★★**
Artbeats is a series of superb, high-tech EPS backgrounds. Packages include Dimensions 1 through 3, Potpourri, Natural Images 1 and 2, and Marble & Granite, which offer abstract, geometric, and natural images. Each package has about 20 full-page backgrounds, saved as both FreeHand and EPS files. These are complex backgrounds, often with sophisticated blends that demand RAM and take time to print (the results are worth it). \$99.95 each. Artbeats, P.O. Box 1287, Myrtle Creek, OR 97457. 800-444-9392 or 503-863-4429. (Nov '90) [MF#631]

ArtClips **★★**
ArtClips is a pair of EPS artwork collections that are generally well done but poorly organized. Includes sports, home, technology, and business themes. Version 1.0 reviewed. Version 2.0 shipping. \$149. Olduvai Corp., 7520 Red Rd., Ste. A, South Miami, FL 33143. 800-822-0772 or 305-665-4665. (Aug '89) [MF#632]

ArtWare: Equestrian **★★**
This collection of horse artwork is fun — and there's a fair amount of it — but the quality isn't suitable

for professional publishing. \$89.95. ArtWare Systems, Inc., 6512 Six Forks Rd., Ste. 502A, Raleigh, NC 27615. 919-790-7722. (Aug '88) [MF#633]

Canned Art: Clip Art for the Mac **★★★★**
Canned Art: Clip Art for the Mac is a printed catalog of more than 15,000 images currently available on-disk. Most images are reduced, so several fit on a page. Excellent detailed index saves hunting through disks. Version 1.0 reviewed. Version 2.0 shipping. \$29.95; sample disk, \$10. Peach Pit Press, 2414 Sixth St., Berkeley, CA 94710. 800-283-9444 or 510-527-8555. (Sept '90) [MF#634]

Click & Clip Illustrations **★★**
The Click & Clip packages are EPS graphics with a wide variety of business and seasonal themes. Version 1.0 reviewed. \$395; special selections also available. Studio Advertising Art, P.O. Box 43912, Las Vegas, NV 89116. 702-641-7041. (Aug '88) [MF# 635]

ClickArt **★★★★**
The ClickArt series consists of numerous MacPaint-format and EPS packages. Themes include business, sports, animals and nature, holidays, religion, and cartoons. Artwork is generally well drawn; some collections are a bit unfocused, but overall this is a good buy. MacPaint-format packages include useful ClipOut DA and a HyperCard stack. MacPaint packages, \$59.95 each; EPS packages, \$129.95 each; Color Graphics for Presentations (PICT2 and EPS), \$149.95. T/Maker Co., 1390 Villa St., Mountain View, CA 94041. 415-962-0195. (Nov '90) [MF#636]

Clippables: the EPS Graphics Library **★★★★**
Clippables is an enormous collection of EPS artwork. The 1,100 images are well drawn and cover a wide range of topics. Favors variety over depth. \$299.95. C.A.R., 7009 Kingsbury, St. Louis, MO 63130. 800-288-7585 or 314-721-6305. (Nov '90) [MF# 637]

Cliptures **★★★★**
Cliptures is a series of EPS clip-art packages comprising two business packages, a sports collection, and a colorful and complete flags set. \$129.95 per volume. Dream Maker Software, 925 W. Kenyon Ave., Ste. 16, Englewood, CO 80110. 800-876-5665 or 303-762-1001. (Aug '89) [MF#638]

Collector's Editions I and II **★★★★**
The Adobe Collector's Editions offer excellent selections of basic graphic elements for Illustrator users. Symbols, Borders & Letterforms contains a wide range of dingbats, borders, and two editable alphabets. Patterns and Textures provides more than 400 patterned fills, including standard patterns

used in architecture, mapmaking, meteorology, and geology. Files are Illustrator documents and must be resaved in EPS format before being imported into other programs. Requires Adobe Illustrator. Symbols, Borders & Letterforms, \$125; Patterns and Textures, \$225. Adobe Systems, 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Nov '90) [MF#639]

Digit-Art **★★**
Digit-Art is an overwhelming collection of EPS clip art available on floppy disk and on CD-ROM. Comes with a well-designed catalog of images. Over 20 volumes are available. Version 1.0 reviewed. Version 5.0 shipping. CD-ROM, \$799; single volume (disk), \$99; two volumes (disk), \$168; three volumes (disk), \$199. Image Club Graphics, Inc., 1902 Eleventh St. S.E., Ste. 5, Calgary, Alberta T2G 3G2 Canada. 800-661-9410 or 403-262-8008. (Aug '88) [MF#640]

Graphics Pak **★★★★**
ArtWare's Graphics Pak is a large collection of clip art with uneven quality. The borders are the most elegant. Other packages are available. Version 1.0 reviewed. \$149.95. ArtWare Systems, Inc., 6512 Six Forks Rd., Ste. 502A, Raleigh, NC 27615. 919-790-7722. (Aug '88) [MF#641]

Images with Impact! **★★★★**
Images with Impact! has several collections of superb, imaginative EPS clip art. Package topics include business, general-purpose graphics and symbols, and people. Accents & Borders I (winner of a MacUser Editors' Choice Award) contains 270 design elements, including borders, frames, ornaments, symbols, and mortises; registered users receive a bonus disk of color artwork. Images are opaque, and most are strategically subgrouped for easy editing. Excellent manual. Business 1, \$129.95; Graphics & Symbols 1, \$99.95; Accents & Borders 1, \$129.95; other selections available. 3G Graphics, Inc., 114 Second Ave. S., Ste. 104, Edmonds, WA 98020. 800-456-0234 or 206-774-3518. (Nov '90) ★ '90 Eddy [MF#642]

MacGallery **★★★★**
MacGallery is a whimsical collection of MacPaint images, ideal for children's publications, newsletters, and invitations. The 400 original illustrations include holidays, food, sports, borders, animals, plants, babies, teddy bears, dinosaurs, and cartoon arms and legs. Four pieces of presized stationery in greeting-card, three-fold mailer, business-card, and certificate sizes. Excellent manual. \$49.95. Dream Maker Software, 925 W. Kenyon Ave., Ste. 16, Englewood, CO 80110. 800-876-5665 or 303-762-1001. (Nov '90) [MF#643]

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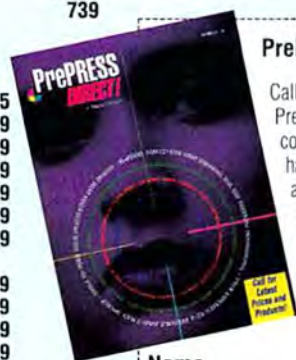
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MINIFINDERS

MacGraphics \$\$\$

MacGraphics is a collection of bit-mapped clip art on 13 thematic disks. Most pictures are full-page, and unfortunately, reproduction quality suffers when they are reduced. Version 3.0 reviewed. \$225. GoldMind Publishing, 4994 Tulsa Ave., Riverside, CA 92505. 714-687-3815. (Feb '89) [MF#644]

Metro ImageBase

Electronic Art \$\$\$½

Metro ImageBase Electronic Art is a series of TIFF and EPS clip art from a pioneer of the clip-art industry. The traditional-looking images occupy lots of disk space. There are 18 volumes available. \$145 per volume. Metro ImageBase, Inc., 18623 Ventura Blvd., Ste. 210, Tarzana, CA 91356. 800-525-1552 or 818-881-1997. (Aug '89) [MF#645]

Professional Photography Collection, Volume 1 \$\$\$\$

This CD-ROM contains 100 color TIFF images. Each image comes in three formats: 24-bit high-resolution color, 24-bit low-resolution color, and 8-bit black-and-white. Strikingly clear, high-quality images. Includes printed catalog and a liberal rights policy. \$149 direct. discimagery, 18 E. 16th St., New York, NY 10003. 212-675-8500. (Sept '90) [MF#646]

SwivelArt \$\$\$\$½

SwivelArt was the first of several collections of 3-D images and fonts for use with Swivel 3D Professional or other programs. Includes read-only version of Swivel 3D Professional, serif and sans-serif 3-D fonts, a HyperCard stack for creating 3-D text, and more than 100 3-D maps, images of office equipment, and words and symbols commonly used in business presentations. Swivel 3D Professional can edit the images, or images can be exported in PICT or EPS formats to other graphics applications. Version 1.24 reviewed. \$129.95; Maps I and II, \$250 each; Viewpoint Collections (Cars, Air & Sea, Anatomy), \$250 each. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Aug '91) [MF#647]

Totem Color Clip Art \$\$\$\$½

Totem Graphics has 13 volumes of PostScript images in 24-bit color. Color blends and fine details look superb even printed in black-and-white. The 13 categories emphasize animals and plants but also include holidays, food, sports, business, and people. Images are available in four formats and are fully editable. \$125 per category; \$995 for CD-ROM with 15 categories. Totem Graphics, Inc., 6200-F Capitol Blvd., Tumwater, WA 98501. 206-352-1851. (Oct '89) [MF#648]

Vivid Impressions \$\$\$½

Vivid Impressions is cartoonish

EPS clip art, some of it in color. Special Events contains 130 images, but many of them are slightly altered duplicates. Version 1.0 reviewed. \$39.95. Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908. 800-359-4920 or 408-484-9228. (Aug '89) [MF#649]

WetPaint \$\$\$\$

WetPaint is a series that contains massive quantities of well-drawn MacPaint graphics. The best-seller is Classic Clip Art. Other titles include Publishing, Animal Kingdom, Special Occasions, Industrial Revolution, Island Life, and All the People. Art styles range from line drawings to digitized images, and several packages contain images reminiscent of woodcuts and other "antique" graphics. MacTut is a unique collection of ancient Egyptian artwork along with hieroglyphic fonts. Each volume includes ArtRoundup and Pattern Mover DAs. Each volume, \$89.95. DabClick Software, Inc., 22521 Styles St., Woodland Hills, CA 91367. 800-266-9525 or 818-888-2068. (Sept '87) [MF#650]

DRAWING

CA-Cricket Draw III \$\$\$

CA-Cricket Draw is an entry-level object-oriented PostScript drawing program that produces high-quality output. Chief strengths are ease of use and good object-manipulation controls. Has full selection of drawing tools, with a Bézier pen tool that rivals high-end programs. Excellent color blends and fountains. Doesn't support multiple drawing layers. Doesn't do color separations. Can't convert text to outlines and lacks some controls for text formatting and display. Imports and exports PICT and EPS files, but EPS files cannot be edited. Version 1.0 reviewed. Requires Mac Plus or later with at least 2 MB of RAM, System 6.07 or later, and a hard drive; Mac II series or higher with accelerated 24-bit color display system recommended. \$249. Computer Associates, One Computer Associates Way, Islandia, NY 11788. 800-531-5236 or 516-342-6000. (Aug '92) [MF#651]

Canvas \$\$\$\$

Canvas is a rich QuickDraw drawing/painting program that features full Bézier curves; cutting and joining of polygons; skewing, perspective, and distortion capabilities; auto-dimensioning; area and perimeter calculation; auto-tracing of bit maps; and full-color support. Excellent complement to high-end PostScript programs. Offers good handling of type and text. Supports gradient fills, plug-in tools, and multiple graphics-file formats. Creates and edits high-resolution bit maps to 2,540 dpi. Modular program design lets

you install just the features and tools you'll need. Slightly less-powerful DA version available. Supports QuickTime. Version 3.0 reviewed. Version 3.04 shipping. Requires Mac Plus or later and System 6.05 or later. \$399. Deneba Software, 7400 S.W. 87th Ave., Miami, FL 33173. 800-622-6827 or 305-596-5644. (Jan '92) ★ '89. '91 Eddy [MF#652]

Design Your Own Home:

Architecture \$\$\$

Design Your Own Home: Architecture is a specialized but easy-to-use drawing program that produces simple housing floor plans and elevations. Has built-in parts libraries and many sample plans. Version 1.0 reviewed. Version 1.7 shipping. Requires Mac Plus or later. \$99.95. Abracadabra Ltd., P.O. Box 2440, Eugene, OR 97402. 800-451-4871 or 503-342-3030. (May '90) [MF#653]

DrawTools \$\$\$

DrawTools self-installs three DAs for use with MacDraw II. Sizer does exact scaling and dimensioning, calculates enclosed areas, and lets you resize a drawing. Adjacency brings together any two selected objects. Tools adds a handy menu that lets you clip or extend existing lines and build fillets. Can be awkward to use. Version 1.1 reviewed. Version 1.1.1 shipping. Requires Mac Plus or later and MacDraw II version 1.0v4 or 1.1v2. \$99.95. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (July '90) [MF#654]

FreeHand \$\$\$\$½

FreeHand 3.0 is a professional color PostScript illustration package. Includes auto-trace, 100 levels of undo, freehand drawing, and powerful Blend command. Version 3.0 improves text manipulation but relies on dialog box for input. Fast screen redraw. New tool palettes (Layers, Colors, and Styles). Can edit in Preview mode. Allows Pantone, spot, or CMYK process color controls. Displays, separates, and prints 32-bit color TIFF images, and generates EPS files compatible with OPI (Open Prepress Interface) system. Steep learning curve, but has streamlined, easy-to-navigate interface. Version 3.0 reviewed. Version 3.1 shipping. Requires Mac Plus or later with at least 2 MB of RAM and a hard drive. \$595. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (July '91) [MF#655]

Illustrator \$\$\$\$½

Illustrator is a professional color PostScript graphics program from the people who defined the PostScript language. Version 3.0's extremely powerful, compact toolbox offers more drawing tools than did earlier versions. Its new charting functions let you import detailed spreadsheet data as text,

which Illustrator automatically converts into complex, easily customized charts (changes to imported numerical data also update the chart). Uses a freehand drawing mode or bit-mapped templates for detailed artwork. Version 3.0 reviewed. Version 3.02 shipping. Requires Mac Plus or later. \$595. Adobe Systems, 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Feb '91) ★ '88 Eddy [MF#656]

MacDraft \$\$\$\$

MacDraft is an object-oriented drawing program that offers a rich set of features for a moderate price. Object rotation is precise, and it accesses the full spectrum of 16.7 million colors. Particularly appropriate for high-school or college-level introductory CAD classes or for small architectural/construction contracting businesses. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard drive. \$399. Innovative Data Design, Inc. (idd), 135D Mason Circle, Concord, CA 94520. 510-680-6818. (Oct '90) [MF#657]

MacDraw II \$\$\$

MacDraw II updates the venerable, popular, object-oriented drawing program. Easy to use. Supports 8-bit color import and export, including PICT II format. Users can upgrade to new version, MacDraw Pro. Version 1.0 reviewed. Version 1.1v2 shipping. Requires Mac Plus or later and a hard drive. \$199. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (Nov '88) ★ '85 Eddy [MF#658]

MacDraw Pro \$\$\$\$½

This updated version of Claris' popular illustration program offers an elegant, intuitive interface and a variety of tools. No longer a bare-bones drawing program, MacDraw Pro offers precise text manipulation, a range of file translation and -import capabilities, support for 32-bit-color images (including gradient shading), and complex charting. Bézier tool allows sophisticated design and editing of Bézier curves and polygons. Version 1.0v1 reviewed. Version 1.5 shipping. Requires Mac Plus or later with at least 4 MB of RAM, System 6.03 or later, and a hard drive. \$399; upgrade from MacDraw II, \$99. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (Nov '91) ★ '85 Eddy [MF#659]

Michael's Draw \$\$\$

This feature-rich, quirky color-drawing program offers a dizzying array of tools, as well as the surprising ability to do sophisticated image processing of pixel-based artwork. Good control of text, patterns, and drawing layers. Confusing, nonstandard interface. Version 1.0 reviewed. Requires

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Mac Plus or later and System 6.03 or later. \$149.99. Event One, 222 Del Norte Ave., Sunnyvale, CA 94086. 408-734-4358. (Jan '92) [MF#660]

Relational Objex \$\$\$

Relational Objex (formerly called Paradigm) is a drawing program with a difference. It performs relational drawing, in which each point's position depends on the location of other points — if you move a point, the rest of the drawing reacts correspondingly. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later. \$240. SoftStream International, Inc., 10 Twin Ponds Dr., S. Dartmouth, MA 02748. 800-262-6610 or 508-991-4011. (Mar '90) [MF#661]

Streamline \$\$\$

Streamline is a dedicated PostScript auto-trace package. Can quickly produce nearly print-ready traces with little tweaking. Retains original scanned images' black-and-white values. Final touch-ups must be completed in Illustrator or a similar program. Continuous-tone photos aren't usually worth the trouble. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later and System 4.2 or later; 2 MB of RAM recommended. \$195. Adobe Systems, 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Nov '89) [MF#662]

Fonts & Typography

ASCII Chart \$\$\$

ASCII Chart is a DA that shows all 256 characters for a font. Fonts can be easily changed with the Font menu. Can display characters at 72 points. Quickly finds hidden characters, keystrokes, and hex equivalents. Doesn't print. Version 2.0 reviewed. Version 4.2 shipping. Shareware, \$10; available from on-line services such as ZiffNet/Mac. Jon Wind. (Oct '90) [MF#663]

ATM (Adobe Type Manager) \$\$\$\$

Adobe Type Manager is a must-have utility that creates smooth PostScript type fonts at any size on-screen and when printed on QuickDraw printers such as Apple's ImageWriter II. Not quite perfect (has some problems with Microsoft Word and smaller point sizes) and has slow performance on 68000-based Macs. Version 1.01 reviewed. Version 2.0 shipping. Requires Mac Plus or later and System 6.03 or later. \$99. Adobe Systems, 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Feb '90) ★ '89 Eddy [MF#664]

Classic Textures \$\$\$

Classic Textures is an advanced

implementation of TeX, a popular standard among code-based typesetting programs. Used extensively for complex long-document publishing, especially in the legal profession and with large databases. Handles mathematical typesetting well. Good for people trained on mainframes in the early days. Steep learning curve. Version 1.0 reviewed. Version 1.5 shipping. Requires Mac Plus or later with at least 2 MB of RAM. \$695; education-discount price, \$495. Blue Sky Research, 534 S.W. Third Ave., Portland, OR 97204. 800-622-8398 or 503-222-9571. (Apr '88) [MF#665]

Evolution \$\$\$

Evolution is an easy-to-use conversion utility for translating fonts among Type 1, Type 3, and EPS formats. Doesn't produce AFM (Adobe Font Metrics) files, and fonts are unhinted. Sensitivity controls help with difficult conversions, and Evolution can output character sets as printer fonts. Version 1.02 reviewed. Version 2.0 shipping. Requires Mac Plus or later, System 6.04 or later, and a hard drive. \$79. Image Club Graphics, Inc., 1902 Eleventh St. S.E., Ste. 5, Calgary, Alberta T2G 3G2 Canada. 800-661-9410 or 403-262-8008. (May '91) [MF#666]

Fontina \$\$\$

Fontina greatly enhances a font menu by showing all your fonts simultaneously, in multiple columns if needed. No scrolling is required. Correctly organizes font families. Can show fonts in any face and size. Trouble-free, and performance is excellent. Knapsack feature lets you put favorite fonts at the top of the menu. Version 1.0 reviewed. Requires Mac Plus or later. \$69.95 direct. Eastgate Systems, P.O. Box 1307, Cambridge, MA 02238. 800-562-1638 or 617-924-9044. (Sept '90) [MF#667]

FontMonger \$\$\$

FontMonger is a robust font-alteration tool that can convert fonts among PostScript Type 1, Type 3, and TrueType formats. Alterations include small caps; inferior, superior, and slanted characters; and fractions and other composite characters. Characters from different fonts can be combined into a single font, and EPS images can be imported as characters. Alteration interface is excellent, but conversion dialog boxes are often confusing. Can export character shapes as EPS or PICT outlines; PICT images are frequently unusable. Incomplete manual. Version 1.03 reviewed. Version 1.05 shipping. Requires System 6.03 or later and at least 2 MB of RAM; hard drive recommended. \$99.95. Ares Software, P.O. Box 4667, 561 Pilgrim Dr., Ste. D, Foster City, CA 94404. 415-578-9090. (Nov '91) [MF#668]

Fontographer \$\$\$\$

Fontographer is an excellent PostScript font editor/generator. Features include an integrated screen-font editor, auto-tracing, a pen tool, and automatic or editable hinting. Can create PostScript and TrueType fonts, and supports Adobe's Multiple Master format. Features two pressure-sensitive freehand drawing modes that work well with digitizing tablets such as those from Wacom and CalComp. Can scale fonts mathematically or automatically interpolate between two different font weights, although results normally require some touching up. Easy to learn but powerful enough for demanding pros. Version 3.5 reviewed. Requires Mac Plus or later and System 6.03 or later. \$495. Altsys Corp., 269 W. Renner Rd., Richardson, TX 75080. 214-680-2060. (Oct '92) [MF#669]

FontSizer II \$\$\$

FontSizer II creates high-quality screen fonts of any downloadable PostScript typeface in sizes up to 96 points. Excellent utility for producing large font sizes with true WYSIWYG. Version 1.7 reviewed. Version 2.0 shipping. Requires Mac Plus or later, System 5.1 or later, and a PostScript printer. \$99.95. American Microelectronics, 1611 Headway Cir., Bldg. 3, Austin, TX 78754. 512-339-0001. (Apr '89) [MF#670]

FontStudio \$\$\$\$

FontStudio provides a fully integrated environment for typography on the Mac. If you want a font-production system, FontStudio might be irresistible, because of its ability to store character parts in a library, its excellent bit-map editor, and its strong kerning-pairs interface. Supports Adobe Type 1, Bitstream, Fontographer, LetraFont, and TrueType fonts. Provides automatic and manual hinting plus automatic interpolation between two existing font weights. Lets you select either Adobe Type Manager, TrueType, or a built-in rasterizer to display outline characters during design process. Can import Illustrator 1.1 artwork or use PICT and TIFF files as templates. Interface is dense, precise, and sometimes confusing. Version 2.0 reviewed. Requires Mac Plus or later and a hard drive. \$595. LetraSet USA, Inc., 40 Eisenhower Dr., Paramus, NJ 07653. 800-343-8973 or 201-845-6100. (May '92) ★ '91 Eddy [MF#671]

Hermes & Tribune Fonts \$\$\$\$

Hermes & Tribune Fonts are specially designed fonts that come in sizes up to 120 points. Optimized for the ImageWriter LQ, the LaserWriter IISC, and fax modems, these fonts look better than Apple's fonts and can replace Helvetica and Times. Requires a non-PostScript, high-resolution printer. \$49.95. Agfa Division,

Miles, Inc., 200 Ballardvale St., Wilmington, MA 01887. 800-227-2780 or 508-658-5600. (Sept '89) [MF#672]

KernEdit \$\$\$\$

KernEdit is an excellent kern-pair editor that lets you alter the kerning data for both PostScript and TrueType fonts. Word View feature greatly simplifies kerning-table creation. Maximum resolution is 1/1,000 em. Version 1.06 reviewed. Version 2.0 shipping. \$149; additional kerning-table packages, \$95 each. Agfa Division, Miles, Inc., 200 Ballardvale St., Wilmington, MA 01887. 800-227-2780 or 508-658-5600. (Apr '90) [MF#673]

LetraStudio \$\$\$\$

LetraStudio is a type-customization program for creating headlines, logos, signs, and other display type. Can create unique distortion effects. Works with LetraFont typefaces and TrueType or Adobe Type 1 fonts. Lets you edit imported Adobe Illustrator drawings. Interface may seem awkward to some users. Exports files in Illustrator, EPS, and other formats. Can open multiple documents. Adequate color support. Version 2.01 reviewed. Requires Mac Plus or later and a hard drive. \$249. LetraSet USA, Inc., 40 Eisenhower Dr., Paramus, NJ 07653. 800-343-8973 or 201-845-6100. (Oct '92) ★ '88 Eddy [MF#674]

LetrTuck \$\$\$\$

LetrTuck is a kerning utility that lets you add, delete, or modify the kern pairs for any installed screen font in the System file, Font/DA Mover suitcases, or QuarkXPress documents. Version 1.04 reviewed. Version 3.01 LetrTuck Plus shipping. \$99. EDCO Services, 12410 N. Dale Mabry Hwy., Tampa, FL 33618. 800-523-8973 or 813-962-7800. (June '89) [MF#675]

Letterforms and Illusions \$\$\$\$

Letterforms and Illusions is a set of fonts and figures that leads you into exciting typographic explorations. Includes a limited version of MacPaint. Requires Mac Plus or later. \$39.95. W. H. Freeman & Co., 41 Madison Ave., New York, NY 10010. 212-576-9400. (Mar '90) [MF#676]

MacTography Type Sampler and Type Listing \$\$\$\$

The MacTography Type Sampler and Type Listing combination is a classic art director's type book that has samples of all PostScript laser fonts. The material is searchable on-disk, but screen-resolution is poor. The printed version of Type Sampler is the more valuable part of this package. Requires Mac Plus or later; Type Listing requires Microsoft Works. \$75; one year of printed updates, \$80. MacTography, 326-D N. Stone-street Ave., Rockville, MD 20850.

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MINIFINDERS

301-424-3942. (Apr '90) [MF# 677]

Metamorphosis Professional

Metamorphosis Professional is a utility that converts fonts among PostScript Type 1, Type 3, and TrueType formats on the Mac. Can also produce PostScript fonts for the PC and NeXT platforms. TrueType fonts for the PC, and Fontographer databases. Can access PostScript fonts located in printer ROM and save them on your hard disk. Also can export EPS and PICT outlines of font characters. Elegant interface is powerful yet flexible. Can't create bit maps for TrueType-to-Type-1 conversions and can't convert Adobe Expert series. Version 2.01 reviewed. Version 2.03 shipping. Requires Mac Plus or later and System 6.02 or later; hard drive recommended. \$149. Altsys Corp., 269 W. Renner Rd., Richardson, TX 75080. 214-680-2060. (Nov '91) [MF#678]

Publishing Packs

Publishing Packs bundles three Adobe typefaces that work well together for specific publishing projects. The packages offer substantial savings over purchasing the typefaces individually, and the documentation has useful information on typeface characteristics. Requires Mac Plus or later. Publishing Pack 1 (Newsletters), \$395; Publishing Pack 2 (Forms and Schedules), \$475; Publishing Pack 3 (Presentations), \$475. Adobe Systems, 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Feb '89) [MF# 679]

SPECTacular

SPECTacular is a flexible type-sampler program that prints a variety of handsome specimen sheets. Shows typefaces in one- and two-page layouts. Incomplete documentation. Version 1.1.6 reviewed. Version 1.2 shipping. \$79.95. Omega Systems, P.O. Box 7633, Chico, CA 95927. 916-894-6351. (Dec '91) [MF#680]

theTypeBook

This simple type-sampler program includes four layouts: a specimen page, a key-caps table, a complete character set, and line showings. The latter prints a two-line sample of each selected font. Provides a fast, easy way to compare installed fonts. No frills but offers lots of information about fonts and typography. Good support. Version 2.2 reviewed. Version 2.36 shipping. Requires Mac Plus or later with System 6.04 or later. Free via on-line services such as ZiffNet/Mac; customized version, \$45; or send postage-prepaid disk mailer and an 800K disk. Golden State Graphics (Jim Lewis), 2137 Candis Ave., Santa Ana, CA 92706. 714-542-5518. (Dec '91) [MF#681]

TypeAlign

TypeAlign is an INIT/DA utility that is helpful for DTP work if you use Adobe Type Manager. TypeAlign lets you quickly place text along circular, angled, or arbitrary paths. The program could use the Clipboard better, but the simple effects are easy to control, and the results are striking. Version 1.0.2 reviewed. Version 1.04 shipping. Requires Mac Plus or later, System 6.03 or later, ATM, and a hard drive. \$99. Adobe Systems, 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (May '90) ★ '89 Eddy [MF# 682]

TypeChart

This type-sampler program includes five well-designed pages containing useful typographic information. Overview page shows sample headline, standard and composite characters, sample paragraphs, and examples of type-style variations. Headline page shows a font in sizes from 16 to 127 points. Text page shows sample paragraphs in point sizes from 5 to 14 points. Allows alteration or replacement of sample text. Provides flexible printing options and excellent technical data about installed fonts. Version 1.5 reviewed. \$99.95. Agfa Division, Miles, Inc., 200 Ballardvale St., Wilmington, MA 01887. 800-227-2780 or 508-658-5600. (Dec '91) [MF#683]

TypeStyler

TypeStyler is an easy-to-use type-customization program that lets you transform TrueType or Adobe Type 1 fonts into complex display type. Uses Bézier-curve editing controls to distort either individual letter characters or entire blocks of text. Supports 8-bit or 24-bit color and can output files as spot- or process-color separations. Supports RGB, CMY, or CMYK colors but not Pantone colors. Overprint feature handles color-registration problems when printing simple graphics. Letter Fusion feature quickly creates striking special effects such as graduated color fills. Includes Adobe Type Manager. Version 2.01 reviewed. Requires Mac Plus or later and System 6.03 or later. \$219.95. Brøderbund Software, Inc., 500 Redwood Blvd., P.O. Box 6125, Novato, CA 94948. 800-521-6263 or 415-382-4400. (Oct '92) ★ '90 Eddy [MF# 684]

World Class Fonts!

World Class Fonts! are bit-mapped screen fonts that come with three useful utilities, all the Mac the Knife fonts, and a lot more. Eight separate volumes are available. \$89.95 per volume. Dubl-Click Software, Inc., 22521 Styles St., Woodland Hills, CA 91367. 800-266-9525 or 818-888-2068. (Oct '86) [MF#685]

MODELING & ANIMATION

ADDmotion

ADDmotion is an extension to the HyperCard 2.0 development environment that provides a powerful set of animation tools. Animations are created using TimeLines (an editing window) and the Media Controller palette (resembling a VCR), with cels, actors, props, and object paths. Provides its own color-painting and sound tools. ADDmotion's run-time XCMDs are included and can be distributed royalty-free. Not for beginners. Includes HyperCard. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later with at least 2 MB of RAM, System 6.07 or later, and a hard drive; at least 4 MB of RAM required for color work. \$149. Motion Works, Inc., 1020 Mainland St., Vancouver, British Columbia V6B 2T4 Canada. 604-685-9975. (July '91) [MF#686]

Alias Sketch!

This high-end 3-D-modeling and rendering program has several unusual features; provides powerful NURBS modeling, many options for complex objects and vertex editing, and model-perspective control against scanned backgrounds. Slow and has a few performance bugs. Rendering quality is adequate, but texture map positioning is difficult. Lacks animation capabilities. Version 1.02 reviewed. Requires 68020 CPU or higher with math coprocessor, System 6.05 or later, 32-bit QuickDraw, at least 8 MB of RAM, and a hard drive. \$995. Alias Research, Inc., 110 Richmond St. E., Toronto, Ontario M5C 1P1 Canada. 800-447-2542 or 416-362-9181. (Sept '92) [MF#687]

Animation Works

This suite of powerful, affordable software tools simplifies the creation of Mac-based animations. Can save animations as stand-alone sequences playable with included Movie Player application. Sequences are likewise playable by HyperCard stacks, using XCMD also included in this package. Macs equipped with RGB/NTSC conversion hardware and print-to-video software can output Animation Works movies to videotape. Version 1.0 reviewed. Requires 8-bit color display system. \$199.95. Gold Disk, Inc., P.O. Box 789, Streetsville, Mississauga, Ontario L5M 2C2 Canada. 416-602-4000. (Nov '91) ★ '91 Eddy [MF#688]

ElectricImage Animation

This high-end 3-D-modeling program offers excellent rendering quality and speed, control of type fonts and texture mapping, and alpha-channel support. Animation features are weak. Includes Mr.

Font, a powerful text-extruding program. Has wide variety of file-import options. Uses hardware copy-protection. Inadequate documentation. Version 1.05 reviewed. Version 1.5 shipping. Requires 68020 CPU or higher with math coprocessor, System 6.05 or later, 32-bit QuickDraw, at least 8 MB of RAM, and a hard drive. \$7,495. Electric Image, Inc., 117 E. Colorado Blvd., Ste. 300, Pasadena, CA 91105. 818-577-1627. (Sept '92) [MF#689]

FilmMaker

FilmMaker is a powerful animation tool that includes five separate applications: Mark, Animate, Color, Sound, and Present. It is limited to the animation process, so the original graphic images that become sequential frames in FilmMaker must be created in a painting or 3-D program and then imported as PICT, PICS, or EPS files. The program isn't optimized for precisely registered frame animation. Also, the interface seems incomplete and awkward. Version 2.01 reviewed. Requires Mac II series or higher with 5 MB of RAM, a hard drive, and 32-bit QuickDraw. \$695. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Apr '91) ★ '90 Eddy [MF#690]

Infini-D

Infini-D packs modeling, rendering, and animation features into an easy-to-use 3-D-design package. Offers true object metamorphosis, free-form objects, ray tracing, SMPTE time-code animation, and multilayer surfaces. Well-integrated interface allows multiple views and light sources plus easy object editing. Rendering quality and speed are below average. Doesn't provide spline-based modeling tools. Sophisticated use of fractals creates realistic, randomly generated terrain. Surface maps can combine color, bump, transparency, reflection, and glow effects. Animations can be exported to other programs. BackBurner option distributes rendering among networked Macs. Good documentation. Version 1.12 reviewed. Version 2.0 shipping. Requires 68020 CPU or higher, a math coprocessor, at least 4 MB of RAM, 32-bit QuickDraw, and a hard drive. \$995; BackBurner, \$395 (group discount available). Specular International, P.O. Box 888, Amherst, MA 01004. 413-549-7600. (Sept '92) [MF#691]

Life Forms

Originally developed for dance choreography, **Life Forms** is a 3-D human-figure animation program. Doesn't show fine details such as fingers and faces. Can save wire-frame animation scripts as PICS or QuickTime sequences. To create lifelike shaded human figures, scripts must be exported to Swivel 3D Professional for

MICE RATINGS 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2

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manipulation. Version 1.0 reviewed. Requires Mac Plus or later with at least 2 MB of RAM and System 6.05 or later. \$495. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Sept '92) [MF#692]

MacRenderMan ********
MacRenderMan generates photorealistic color images from files created in 3-D programs and saves them in RIB (RenderMan Interface ByteStream) format. Programs supporting RIB format include Macromedia Three-D, StrataVision 3d, and Swivel 3D Professional. Spools RIB files into a folder and processes in the background under MultiFinder. Supports 32-bit color and renders attributes such as transparency, surface textures, multiple light sources, natural or artificial light, reflected light, shadows, and motion blur. Complex and time-consuming to master, but provides superb high-resolution results. Version 1.1 reviewed. Requires Mac II series with 24-bit-color display, at least 5 MB of RAM, 32-bit QuickDraw, and a hard drive. Bundled with Showplace. \$695; CD-ROM version, \$495. Pixar, Inc., 1001 W. Cutting Blvd., Richmond, CA 94804. 510-236-4000. (Aug '91) [MF#693]

MacroMind Three-D *******
This easy-to-use 3-D-modeling program has an excellent animation interface and supports alpha channels. Rendering quality and speed are good. Type extrusion and beveling capabilities are weak. Has a few bugs and sporadic performance problems. Version 1.01 reviewed. Requires 68020 CPU or higher with math coprocessor, System 6.03 or later, 32-bit QuickDraw, at least 8 MB of RAM, and a hard drive. \$1,495. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Sept '92) [MF#694]

MacTAPAS *******
This 3-D-modeling program offers a variety of basic and advanced modeling tools, alpha-channel support, and very good rendering quality. Powerful controls for complex objects and vertex editing. Animation features and documentation are weak. Uses hardware copy protection. Version 1.01 reviewed. Requires 68020 CPU or higher with math coprocessor, System 6.05 or later, 32-bit QuickDraw, at least 8 MB of RAM, and a hard drive. \$7,495. AT&T Graphics Software Labs, 3520 Commerce Crossing, Ste. 300, Indianapolis, IN 46240. 317-844-4364. (Sept '92) [MF#695]

ModelShop II ********
ModelShop II is a powerful 3-D-modeling package. Extensive feature list includes support for unlimited drawing layers, Bézier-

curve walls, text, precise measurements, shaded rendering, multiple light sources, and animation. Flexible, straightforward interface offers good selection of drawing tools plus easy control of viewpoint and mouse-operated walkthrough. Supports DXF and ClarisCAD file formats. Animation options include creation of stand-alone, self-running demos with sound. Version 1.2 reviewed. Version 1.5 shipping. Requires Mac II series or higher with at least 4 MB of RAM, 32-bit QuickDraw, and a hard drive. \$895. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Dec '91) ★ '91 Eddy [MF#696]

Presenter Professional ********
This powerful, high-end 3-D-modeling program offers a full range of object tools and very good rendering quality. Adequate animation capabilities. Supports RenderMan RIB standard and alpha channels. Includes spline-based modeler. Can automatically calculate object volume and surface area. Digital Clay feature uses vertex editing to easily modify nonuniform geometry of complex objects. VIDI Express hardware-acceleration option significantly reduces rendering times. Uses hardware copy protection. Version 1.1 reviewed. Requires 68020 CPU or higher with math coprocessor, System 6.05 or later, 32-bit QuickDraw, at least 8 MB of RAM, and a hard drive. \$3,600; VIDI Express, \$4,495. VIDI (Visual Information Development, Inc.), 16309 Doublegrove St., La Puente, CA 91744. 818-918-8834. (Sept '92) [MF#697]

Ray Dream Designer ********
This midrange 3-D-design program offers fast ray tracing of 3-D models and support for alpha channels but no animation capabilities. Awkward interface and creation of multiple files hinders productivity, but speedy ray-traced renderings show detailed reflective surfaces, shadows, and transparency effects. Has good PICT and texture mapping. Useful Preview mode. Resulting 24-bit PICT files are close to photorealistic. Image-rendering process can run in the background. May be inadequate for modeling convoluted surfaces or complex objects with exact surface definitions. DreamNet option distributes rendering among networked Macs. Version 2.02 reviewed. Version 2.03 shipping. Requires Mac II series with 4 MB of RAM, 32-bit QuickDraw, and a hard drive; coprocessor chip recommended for 68020 Macs. \$895; DreamNet, \$200 (group discounts available). Ray Dream, Inc., 1804 N. Shoreline Blvd., Mountain View, CA 94043. 415-960-0765. (Sept '92) [MF#698]

Sculpt 3D *******

Sculpt 3D offers excellent rendering quality and spline-based modeling tools. Provides absolute-vertex and polygonal-face control of objects. Can model objects with extremely complex geometry. Lacks animation features provided by Sculpt 4D. Interface is difficult to learn and navigate. Hardware-acceleration options are available. Includes three tutorial videotapes. Has hardware copy protection. Weak documentation. Version 2.1 reviewed. Requires 68020 CPU or higher with math coprocessor, System 6.05 or later, 32-bit QuickDraw, at least 8 MB of RAM, and a hard drive. \$2,500. Byte by Byte Corp., 9442-A Capital of Texas Hwy. N., Ste. 650, Austin, TX 78759. 512-795-0150. (Sept '92) [MF#699]

Sculpt 4D *******

Sculpt 4D offers excellent rendering quality and spline-based modeling tools. Provides absolute-vertex and polygonal-face control of objects. Can model objects with extremely complex geometry. Good animation features. Works best with a dedicated 3-D animation program such as ElectricImage. Interface is difficult to learn and navigate. Hardware-acceleration options are available. Includes three tutorial videotapes. Has hardware copy protection. Weak documentation. Version 2.1 reviewed. Requires 68020 CPU or higher with math coprocessor, System 6.05 or later, 32-bit QuickDraw, at least 8 MB of RAM, and a hard drive. \$3,500. Byte by Byte Corp., 9442-A Capital of Texas Hwy. N., Ste. 650, Austin, TX 78759. 512-795-0150. (Sept '92) [MF#700]

Showplace *******

Showplace is an easy-to-use composition program that arranges, manipulates, and illuminates existing 3-D objects imported as RenderMan RIB files. Lacks modeling and animation tools. Includes good basic selection of surface-attribute and shape files. When used with MacRenderMan, provides slow but superb photorealistic rendering. Excellent tutorial videotape. Works well with 3-D modeling programs that have limited rendering capabilities, such as SwivelMan. Version 1.11 reviewed. Requires Mac II series or higher with at least 8 MB of RAM, a hard drive, and a color display system. Bundled with MacRenderMan, \$695; CD-ROM version, \$495. Pixar, Inc., 1001 W. Cutting Blvd., Richmond, CA 94804. 510-236-4000. (Sept '92) [MF#701]

StrataVision 3d ********

This modeling and visualization tool creates complex, photorealistic 3-D images and animations. Rendering and screen-draw times have been reduced with this version. Rendering can

take hours, but it can be done in the background. Proprietary Raydosity option offers extreme realism but may be prohibitively slow. Networked Macs using optional RenderPro application can dramatically reduce rendering times. Supports limited use of Bézier splines for editable, smoothly curved objects. Many texture and shape libraries are available. Use of plug-in Extensions adds many image-control features and creates an almost unlimited upgrade path. Supports PICS format and QuickTime. Version 2.5 reviewed. Requires 68020 CPU or higher with math coprocessor, at least 4 MB of available RAM, and a high-capacity hard drive. \$995; RenderPro, \$299 (group discounts available). Strata, Inc., 2 W. St. George Blvd., Ancestor Sq., Ste. 2100, St. George, UT 84770. 800-678-7282 or 801-628-5218. (Sept '92) ★ '91 Eddy [MF#702]

Super 3D ******

Super 3D is a capable object-oriented drawing program with basic 3-D modeling features. Easy to use, but lacks professional-level tools. Has three solid-rendering modes and can export a scene as an object-oriented 2-D snapshot in PICT or EPS formats. Vertex-level editing gives precise control over every facet of an object. Easy to make global changes. Limited support for shaded rendering or animation. Version 2.5 reviewed. Requires Mac Plus or later, System 6.03 or later, and a hard drive; requires Mac II series or higher for color work. \$495. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Sept '92) [MF#703]

Swivel 3D Professional ********
Swivel 3D Professional is a color-modeling program that speedily forms shaded solids. Casts shadows onto other objects and can project color graphics onto solids. Objects can be manipulated as jointed and sliding mechanisms without accidental dismantling. Can tween-animate objects or fly through scenes and save frames for playback. Easy-to-use interface. Missing some professional tools, such as true spline-based editing and adequate links to RenderMan RIB format. Version 2.04 reviewed. Requires Mac II series or higher with at least 5 MB of RAM, System 6.05 or later, a hard drive, and a color display system. \$695. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Sept '92) ★ '89 Eddy [MF#704]

SwivelMan ********

SwivelMan is a 3-D-modeling package that combines features of Swivel 3D Professional with enhanced support for the RenderMan RIB standard. Excellent control of hierarchical object links and

MICE RATINGS **1** **1 1/2** **2** **2 1/2** **3** **3 1/2** **4** **4 1/2** **5** **5 1/2** **6** **6 1/2** **7** **7 1/2** **8** **8 1/2** **9** **9 1/2** **10**

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Dear Kate Letter

October 22, 1991

Dearest Ellen:

If there is anything better than being loved by you...it is loving you.

And you are so easy to love. You've brought such wonder into my life and have touched my heart with your love.

I just want you to know, my darling, that it feels so good being in love with you and I want to love you for a very long time.

You are a wonderful woman and I love you dearly. If I'm dreaming, please don't wake me up-- I don't want this to end.

Monogamously yours,

1040

Department U.S. In

For the or other

Your

Chr i

If a jo

Label (See instructions on page 8.)

Use IRS label. Otherwise, please print or type.

Presidential Election Campaign (See page 9.)

Filing Status

Check only one box.

Exemptions (See instructions on page 10.)

PERSONAL

Normal

FROM: Scott (11/14/91)

TO: Chris

CC:

BCC:

OFFICE MEMO

Subject: PERSONAL

Time: 1:24 PM

Date: 11/14/91

During a recent dinner at Chairman Binkenheimer's home, you stated that members of the Daughters of the American Revolution are "a bunch of old battle-axes."

Judging from the fact that you made this comment within earshot of the Chairman, you must not be aware that Mrs. B. is a founding member of the local D.A.R. chapter and holds the rank of Brigadier General.

Employee Evaluation

EMPLOYEE EVALUATION

EMPLOYEE NAME	EMPLOYEE #	DEPARTMENT
ANTHONY HALSTEIN	228	Administration

PERFORMANCE OF RESPONSIBILITIES:

Mr. Halstein distinguished himself as a relative administrator. But since Mr. Halstein in this position, this was overlooked as a complete

INTRA-OFFICE RELATIONS:

Mr. Halstein distinguished himself as a relative administrator. But since Mr. Halstein in this position, this was overlooked as a complete

CHARACTER ISSUES:

Mr. Halstein distinguished himself as a relative administrator. But since Mr. Halstein in this position, this was overlooked as a complete

OTHER COMMENTS:

Mr. Halstein distinguished himself as a relative administrator. But since Mr. Halstein in this position, this was overlooked as a complete

RECOMMENDATIONS:

Mr. Halstein distinguished himself as a relative administrator. But since Mr. Halstein in this position, this was overlooked as a complete

RESUME

CHRISTOPHER S. KEENAN

CHRIS PARTY INSIDE

CELEBRATE!

I got a new job, LET'S PARTY!

Date: November 3

Time: 8PM

Place: Chris' Place

123 Unemployment Lane

555-1212

ESSVP

And remember; don't tell anyone else at the office!!!

Your Mac can say a lot about you.

If somebody sat down at your Mac and started snooping around your disk, which would embarrass you more?

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motion axes. Phong rendering mode is fast. Built-in animation and rendering capabilities are adequate, but controls for texture-map attributes are weak. Works best with Pixar's MacRenderMan and with a more powerful 3-D animation package. Lacks true spline-based modeling tools. Can output files in RenderMan RIB, PICT, EPS, DXF, and PICS formats. Version 1.01 reviewed. Requires Mac II series or higher with at least 5 MB of RAM, System 6.05 or later, a hard drive, and a color display system. \$895. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Sept '92) [MF#705]

Upfront **★★★**
This 3-D architectural-sketching tool is intended for conceptual design. Draws and manipulates 3-D objects in colored, shaded perspective view, not merely as wire-frame outlines. Complex interface is poorly designed, and common tasks such as zooming and printing require numerous steps. Lacks several essential tools and features. Can't import DXF files. Supports use of PICT and scanned-image files as backdrops while drawing. Good control of solar lighting, but lacks other light sources. Exports files in PICT, Illustrator, DXF, or EPS formats. Version 1.01 reviewed. Requires Mac II series and a hard drive. \$895. Alias Research, Inc., 110 Richmond St. E., Toronto, Ontario M5C 1P1 Canada. 800-447-2542 or 416-362-9181. (Dec '91) [MF#706]

Virtus WalkThrough **★★★★**
Virtus WalkThrough is a powerful modeling and visualization package that makes virtual-reality concepts available to ordinary desktop Macs. Provides two views of an imaginary building or other object: 2-D Design, which lets you create and precisely customize a model, and 3-D Walk View, which offers a real-time, rendered color perspective through which you navigate in any direction. Lacks import/export capabilities needed for serious CAD. Compact data files. Version 1.03 reviewed. Version 1.11 shipping. Requires Mac Plus or later with at least 2 MB of RAM and a hard drive; color requires Mac II series or higher and at least 4 MB of RAM. \$495. Virtus Corp., 117 Edinburgh St., Ste. 204, Cary, NC 27511. 919-467-9700. (July '91) ★ '90 Eddy [MF#707]

PAGE LAYOUT

CopyFlow **★★★★**
CopyFlow is a QuarkXPress XTension that allows batch importing or exporting of text and graphic elements. Adds its own menu to QuarkXPress. CopyFlow automates placement after you've

completed your revisions. Works well and can be a real time-saver. Version 2.0 reviewed. Version 2.31 shipping. Requires QuarkXPress 3.1. \$395. North Atlantic Publishing Systems, 9 Acton Rd., Ste. 13, Chelmsford, MA 01824. 508-250-8080. (Sept '90) [MF#708]

DataShaper **★★★★**
DataShaper is a PageMaker text-import filter that converts tab- or comma-delimited data files into precisely formatted text as they are placed into a page layout. Requires careful planning and time-consuming programming of special code, but saves considerable time compared with preparing imported text manually. Works well for publishing large, frequently updated databases in custom layouts. Allows creation of multiple filters, each with its own name and providing different typography, spacing, punctuation, and inserted text. Automates arrangement of category heads, subheads, invisible placeholders, and graphics. Version 1.2 reviewed. Requires PageMaker 4.0 or later. \$179.95. ElseWare Corp., 3201 Fremont Ave. N., Seattle, WA 98103. 206-632-3300. (Oct '91) [MF#709]

Fast Forms **★★★★**
Fast Forms is a modest, inexpensive forms-design program intended primarily for low-end users. Its manual is a joy to read. Imports and exports comma- and tab-delimited files. Can create fields to match scanned images of preexisting forms. The FastForms Filler feature lets you fill out forms without needing the original program. Can't import EPS graphics. Version 2.0 reviewed. Requires Mac Plus or later and System 6.03 or later. \$179.95; upgrade, \$49.95. Power Up Software Corp., 2929 Campus Dr., San Mateo, CA 94403. 800-851-2917 or 415-345-5900. (Sept '90) [MF#710]

FlexForm Business Templates **★★★★**
FlexForm Business Templates are two volumes of prepackaged business forms. Includes SmartForm Assistant. Volume I contains stockkeeping, production, sales, billing, and collection forms. Volume II has purchasing, receiving, accounting, disbursing, and personnel business forms. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later and a hard drive. \$89.95 per volume, direct. Formula, Inc., 1160 Industrial Ave., Ste. J, Petaluma, CA 94952. 707-763-9944. (Jan '90) [MF#711]

FrameMaker **★★★★**
FrameMaker is a powerhouse program for long-document and technical publishing. Provides sophisticated control over paragraph formats and cross-referencing. Its spelling checker works well and

quickly. Table formatting is substantially improved over previous version. Imports standard Mac graphics as well as EPS (UNIX), DOS, EPS, and Sun raster files. Supports multiple conditional-text variations of a source document, which adapts the base document according to special user-defined formatting tags. Supports Desktop Color Separation (DCS) graphics, although somewhat clumsily. Version 3.0 reviewed. Requires Mac II series or higher with at least 4 MB of RAM, System 6.03 or later, and a hard drive. \$795. Frame Technology, 1010 Rincon Cir., San Jose, CA 95131. 408-433-3311. (Feb '92) ★ '91 Eddy [MF#712]

Informed Designer **★★★★**
Informed Designer is a complex and comprehensive forms-design program intended primarily for high-end corporate users. Capable of accuracy to 1/1,152 of a degree. Draws lines from .25-point to 999-points thick. Can import or export almost anything. Can take any object and rotate, replicate, duplicate, or resize it ad infinitum. More than 150 mathematical, financial, and statistical functions. Related program, Informed Manager, is a complete flat-file database manager. Version 1.01 reviewed. Version 1.3 shipping. Requires Mac SE or later, System 6.05 or later, and a hard drive. \$295; Informed Manager, \$195; other linked software components available. Shana Corp., Advanced Technology Ctr., 9650 20th Ave., Ste. 105, Edmonton, Alberta T6N 1G1 Canada. 403-463-3330. (Sept '90) [MF#713]

Interleaf Publisher **★★★★**
Interleaf Publisher is a speedy multiuser layout system for producing large, complicated documents. Improved user interface but suffers from poor font management. Planned revision, Interleaf 5, will consist of six products tailored for specific job categories: Interleaf Professional Writer, Interleaf Engineer, Interleaf Illustrator, Interleaf Production, Interleaf Academic, and Interleaf Passport. Version 3.5 reviewed. Version 3.6.2 shipping. Requires Mac II series with 5 MB of RAM and a hard drive. \$995. Interleaf, Inc., Prospect Place, 9 Hillside Ave., Waltham, MA 02154. 800-456-5323 or 617-290-0710. (Apr '89) [MF#714]

Layouts **★★★★**
Layouts is a five-disk set of PageMaker templates. The business-document templates are excellent. The superb manual has money-saving printing tips. Versions for QuarkXPress, DesignStudio, and Ready, Set, Go! are also available. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac Plus or later and PageMaker. \$129.95 for each version. Postcraft International, Inc., 27811 Ave. Hopkins,

Ste. 6, Valencia, CA 91355. 805-257-1797. (May '90) [MF#715]

Multi-Ad Creator **★★★★**
Multi-Ad Creator is a powerful tool that lets you create high-quality single-page ads for PostScript output. It is easy to use and nearly foolproof (it lacks a good-taste feature). Every kind of graphic file and most word-processor files can be imported. If you create ads and don't need an all-purpose page-layout program, get Multi-Ad Creator. Version 2.1 reviewed. Version 3.0 shipping. Requires Mac Plus or later with at least 4 MB of RAM and a hard drive. \$895. Multi-Ad Services, Inc., 1720 W. Detweiler Dr., Peoria, IL 61615. 800-447-1950 or 309-692-1530. (June '90) [MF#716]

PageMaker **★★★★**
PageMaker is a powerful and popular page-layout application. Easy to learn but packed with features. Versatile and well adapted to efficient long-document processing. Now includes Aldus PrePrint application for generating precise, high-resolution color-separations. Has many built-in controls for word processing, complex typography, graphics, System 7 publish-and-subscribe links, indexing, and table editing. Has IAC hot links to graphics created with FreeHand and ColorStudio. Features interruptible screen redraw, a real time-saver. New Control Palette offers exact positioning and dimensioning of selected objects. Supports Aldus Additions, which extend feature set and allow custom scripting. Version 4.2 reviewed. Requires Mac Plus or later, at least 2 MB of RAM, and a hard drive. \$795. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (July '92) ★ '85, '87, '88 Eddy [MF#717]

PDQ! (Page Designs Quick!) **★★★★**
PDQ! (Page Designs Quick!) and PDQ! 5 (Page Designs Quick! 5) are PageMaker templates designed exclusively for newsletter and newspaper publishing. The sets contain many layouts: 60 three-column, 60 four-column, and 225 tabloid-sized, five-column. The templates' quality is excellent, but they lack art. You can modify all layouts from within PageMaker. Version 1.0 reviewed. Requires PageMaker 3.0 or later. PDQ!, \$89.95; PDQ! 5, \$159.95. PAR Publishing, 6355 Topanga Canyon Blvd., Ste. 307, Woodland Hills, CA 91367. 818-340-8165. (Aug '90) [MF#718]

Personal Press **★★★★**
Personal Press is a budget page-layout program with lots of good features, including basic word processing. Has style-sheet support, good TIFF-half-tone controls, and spot-color cutouts. AutoCreate feature simplifies design and production of templates. Easy to use,

MICE RATINGS ★ ★ 1/2 ★★ ★★ 1/2 ★★★ ★★★ 1/2 ★★★★ ★★★★★

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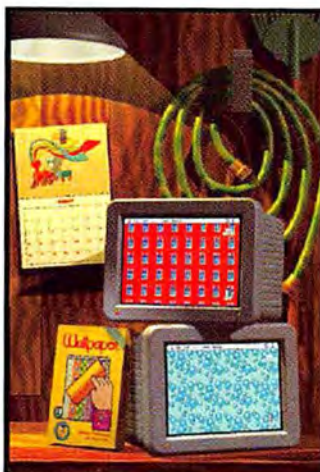
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yet powerful enough for basic DTP projects. Needs ample memory and disk space. Screen refresh occasionally slow. Can have only one document open at a time. Can't do process-color separations. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac Plus or later with at least 2 MB of RAM, System 6.03 or later, and a hard drive. \$199. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (July '91) [MF#719]

Publish It! Easy **1 1/2**

Publish It! Easy is a budget DTP application with many innovative features, including a slide-show option and built-in File-It! database module. Menus and dialog boxes are uncrowded and simple to use. Easy importing of text and graphics. Can't do process-color separations. Has small disk and memory requirements, vertical text justification, and five levels of Undo. Lacks real style sheets. Has user-editable dictionary and a thesaurus. Great for novices or folks with limited DTP requirements. Documentation is adequate but doesn't cover database features well. Network-ready version available. Version 2.18 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 6.03 or later. \$199.95. Timeworks, Inc., 625 Academy Dr., Northbrook, IL 60062. 800-323-7744 or 708-559-1300. (June '92) ★ '90 Eddy [MF#720]

QuarkXPress **4 1/2**

QuarkXPress is a high-end, professional page-layout program that now has a greatly simplified interface. You can also rotate any object or group in increments as fine as .001 degree. Several documents can be open simultaneously. Lets you have multiple retroactive master pages per document. Features excellent, precise typographic and color controls well suited to high-end prepress work. Now includes all custom formatting data within a document, instead of requiring separate, easily forgotten Data file. Can color-separate CMYK TIFF and Scitex CT files, but not RGB, TIFF, or PICT files. Workspace surrounding the page can serve as pasteboard storage. Version 3.1 reviewed. Requires Mac Plus or later with at least 2 MB of RAM and a hard drive. \$895. Quark, Inc., 1800 Grant St., Denver, CO 80203. 800-788-7835 or 303-894-8888. (July '92) ★ '89 Eddy [MF#721]

RagTime **3 1/2**

RagTime combines word-processing, page-layout, graphics, and spreadsheet capabilities. It has a wide array of charts, hyphenation dictionaries in 14 languages, and an integral word processor that can check spelling in 8 languages. Linked spreadsheets within the same document or other documents update automatically.

Offers 80 functions, and you can add external functions for importing data from SQL databases. It also has page-layout functions such as the ability to flow text around frames and to adjust color and tint. Its number-crunching capabilities are minimal. Version 3.04 reviewed. Version 3.1 shipping. Requires Mac Plus or later with at least 2 MB of RAM, System 6.02 or later, and a hard drive. \$599. MacVONK, Inc., 940 Sixth Ave. S.W., Ste. 1100, Calgary, Alberta T2P 3T1 Canada. 403-232-6545. (June '90) [MF#722]

Ready, Set, Go! **3 1/2**

Ready, Set, Go! inherits the name of the venerable and popular page-layout application but is based on the high-end DesignStudio package. More than just a beefed-up version of DesignStudio, the revised application has improved layout-management features, and its handling of text, graphics, and color separations is good. Performance needs to be faster, and a totally new manual would be helpful. Version 1.0 (DesignStudio) reviewed. Version 5.0 shipping. Requires Mac SE/30 with a hard drive or Mac II series. \$395. Manhattan Graphics Corp., 250 E. Hartsdale Ave., Ste. 23, Hartsdale, NY 10530. 800-572-6533 or 914-725-2048. (June '90) [MF#723]

Springboard Publisher II **3 1/2**

Springboard Publisher II is a low-end, very basic, template-based DTP package. Typing window allows simplified text entry. Text and graphics editing only in Actual Size view. Black-and-white painting tools only. Can't color text but includes SmartArt DA. No support for TIFF halftones. Clumsy text-frame linking. No spot color, master pages, or style sheets. Imports standard word-processing documents. Version 2.0 reviewed. Requires Mac Plus or later. \$199.95. Spinnaker Software Corp., 201 Broadway, Cambridge, MA 02139. 800-826-0706 or 617-494-1200. (July '91) [MF#724]

Ventura Publisher Macintosh Edition **3 1/2**

The Mac version of **Ventura Publisher**, the venerable PC page-layout program, still feels like a PC product, despite its considerable strength in technical and long-document publishing. Even if you're willing to forgive its clumsy adaptation to the Mac interface, Ventura still has two major problems: First, it leaves all imported text and graphics files separate from the Ventura document, which lets the Ventura document remain compact but requires constant tracking of the other linked files; second, typeface management is unreliable if you need professional results. Version 3.0 reviewed. Version 3.01 shipping. Requires at least 3 MB of available RAM and a hard drive. \$795. Ventura

Software, 15175 Innovation Dr., San Diego, CA 92128. 800-822-8221 or 619-673-0172. (May '91) [MF#725]

PAINTING & IMAGE EDITING

Aldus Gallery Effects **4 1/2**

Aldus Gallery Effects consists of a wide variety of graphics filters that can be used with Digital Darkroom, SuperPaint, and most programs that accept Photoshop plug-ins. Includes a stand-alone application that simply controls brightness, contrast, and limited color-correction. Filters transform scanned images by simulating brush strokes, watercolors, charcoal, spatter paint, fresco, poster edges, rough-surface craquelure, reflective chrome, and high-contrast graphic pen. Version 1.0 Classic Art reviewed. Requires 24-bit display system; image size is limited by available RAM (except in Photoshop or in Macs using virtual memory). \$199. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Apr '92) ★ '91 Eddy [MF#726]

Amazing Paint **4 1/2**

A sense of fun pervades this black-and-white painting program, which also has a friendly price tag. Extensive special-effects feature list and many clever tools make the program useful for graphics pros and doodlers alike. Has glitzy text functions and flexible print options. Allows multiple levels of Undo. Supports ATM and TrueType. Poor documentation. Version 1.01 reviewed. Version 1.03 shipping. Requires Mac Plus or later and System 6.04 or later; hard drive recommended. \$49.95. CE Software, Inc., 1801 Industrial Cir., P.O. Box 65580, West Des Moines, IA 50265. 800-523-7638 or 515-224-1995. (Oct '91) [MF#727]

Color II **4 1/2**

This affordable 24-bit paint program offers surprising strength in image processing. Delivers basic color-image-enhancement features for users who don't need the high-end power of packages like ColorStudio or Photoshop. Flexible, easy-to-use interface allows for customizable graphics tools and plug-ins from other programs. Excels at constructing complex selections, and can remember a TIFF file's selection area for use when that image is reopened. Supports PICT, TIFF/Mac or TIFF/PC, PostScript, Paint, Photoshop, and CompuServe GIF formats. Weak manual. Version 1.0 reviewed. Version 2.0 shipping. Requires Mac II series or higher with at least 2 MB of RAM, System 6.05 or later, and 32-bit QuickDraw; 24-bit color display system recommended. \$299.95. Timeworks, Inc., 625 Academy

Dr., Northbrook, IL 60062. 800-535-9497 or 708-559-1300. (Apr '92) [MF#728]

Color MacCheese **4 1/2**

Color MacCheese is an inexpensive, full-color painting program that is designed for artistic fun, not as a professional tool. Two noncustomizable palettes are provided, resolution is limited to 72 dpi, and there are no rulers. Only one document can be opened at a time. But for casual painters who want to get to work immediately, Color MacCheese is perfect. Version 1.05 reviewed. Version 2.09 shipping. Requires 68020 CPU or higher with System 6.05 or later. \$99. Delta Tao Software, Inc., 760 Harvard Ave., Sunnyvale, CA 94087. 800-827-9316 or 408-730-9336. (Mar '91) [MF#729]

ColorStudio **4 1/2**

Although more complex and difficult to learn than Adobe's Photoshop, **ColorStudio** offers an unbeatable set of tools for professional-quality color manipulation and high-end output. For electronic prepress work where scanned photos, computer-generated graphics, or other artwork must look their best, ColorStudio lets you control color calibration, film separations, amazing special effects, and a wide range of image-editing tools. The Shapes Annex package (bundled with ColorStudio) adds an editable PostScript drawing layer. Version 1.11 reviewed. Version 1.5 shipping. Requires Mac II series or higher with System 6.05 or later, 32-bit QuickDraw, at least 4 MB of RAM, and a 24-bit color display system. \$795. Fractal Design Corp., 335 Spreckels Dr., Ste. F, Aptos, CA 95003. 408-688-8800 or 408-688-5300. (May '91) ★ '90 Eddy [MF#730]

Comic People, Volume 2:

Kid Stuff **4 1/2**

Comic People, Volume 2: Kid Stuff is a set of Comic Strip Factory add-ons, drawn by Traci Venola and Kurt Wahler. Extraordinary quality and range. Kid Stuff presents five children and two grown-ups of both sexes and various ethnic backgrounds. Also included are backgrounds, sound effects, a very spiky cat, and some Little Extras. Has companion product **Comic People, Volume 1: Office Days**. Best used from within **Comic Strip Factory**. Requires Mac Plus or later. \$39.95 each. Foundation Publishing, Inc., 14228 Shore Ln., Prior Lake, MN 55372. 612-445-8860. (Aug '90) [MF#731]

Comic Strip Factory, The **4 1/2**

The **Comic Strip Factory** is an assembly program for creating comic strips. Includes a database of parts for various characters as well as backgrounds for panels. Good text editing in balloons. Can import and export in MacPaint format. Version 1.0 reviewed.

MICE RATINGS 1 1 1/2 2 2 1/2 3 3 1/2 4 4 1/2 5 5 1/2 6 6 1/2 7 7 1/2 8 8 1/2 9 9 1/2 10

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Version 1.6 shipping. Requires Mac Plus or later. \$69.95. Foundation Publishing, Inc., 14228 Shore Ln., Prior Lake, MN 55372. 612-445-8860. (Dec '87) [MF# 732]

Crystal Paint \$\$\$

Crystal Paint creates an electronic kaleidoscope. It's MacPaint's Brush Mirrors function gone wild in a small, simple — yet wonderful — application. Doesn't support color. Version 1.0 reviewed. Version 1.02 shipping. Requires Mac Plus or later. \$49.95. Great Wave Software, 5353 Scotts Valley Dr., Ste. E, Scotts Valley, CA 95066. 408-438-1990. (Feb '88) [MF#733]

Digital Darkroom \$\$\$\$

If you don't need the color capabilities of more-expensive photo-manipulation programs, then Digital Darkroom is for you. Strictly for black-and-white or high-resolution gray-scale images, although images can be colorized for use in other programs. This program does everything required for professional photo layouts. Uncluttered interface and a wide variety of painting and selection tools. Version 2.0 reviewed. Requires Mac Plus or later with at least 2 MB of RAM and a hard drive, or SE/30 or Mac II series or higher; requires gray-scale or color display system. \$395. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (June '91) ★ '88 Eddy [MF#734]

Easy Color Paint \$\$\$\$

Easy Color Paint is a low-cost 8-bit (256-color) painting program. Supports color QuickDraw printers and WACOM pressure-sensitive digitizing tablets. Allows user-editable colors, patterns, and color blending. Offers gradient fills. Handy Preference files save customized interface configurations. Good performance. Poor manual. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later and System 6.03 or later. \$59.95. MECC, 6160 Summit Dr. N., Minneapolis, MN 55430. 800-685-6322 or 612-569-1500. (Nov '91) [MF#735]

Enhance \$\$\$\$½

Enhance is an affordable, 8-bit, gray-scale image processor. Has many of the sophisticated graphics tools of a first-class photo-retouching program. Blends image processing with high-level graphic-arts tools. Includes painting, text, and shape-drawing tools. Can open TIFF, PICT, MacPaint, or EPS files. Has its own virtual-memory system for dealing with very large images. Tool palette is easily customized. Provides filters, masks, and anti-aliasing. New filters can be created and saved to disk. Dialog-box and menu terminology is fuzzy, but manual is helpful and informative. Version 2.0 reviewed. Requires 68020

CPU or higher with at least 2 MB of RAM, System 6.03 or later, 32-bit QuickDraw, and a hard drive. \$375. MicroFrontier, Inc., 3401 101st St., Ste. E, Des Moines, IA 50322. 800-388-8109 or 515-270-8109. (May '92) [MF#736]

ImageStudio \$\$\$\$½

ImageStudio puts a complete black-and-white or gray-scale photo-retouching lab on the Mac desktop. Editable brushes let you modify digitized images in 256 gray levels. If you never work on color images, ImageStudio may be all you need for professional photo manipulation. Version 1.0 reviewed. Version 1.7 shipping. Requires Mac Plus or later and a hard drive; gray-scale work requires 8-bit video card and a compatible monitor. \$250. Fractal Design Corp., 335 Spreckels Dr., Ste. F, Aptos, CA 95003. 408-688-8800 or 408-688-5300. (June '88) [MF#737]

Kid Pix \$\$\$\$

Kid Pix is a simple color painting program that has entertaining sounds and attention-grabbing, animated special effects. Wacky Brushes includes drippy paint and soda-pop bubbles. The Electric Mixer thrashes drawings. The Splash tool drops big blobs of paint, and Rubber Stamps gives you a choice of 80 images (such as frogs, birds, and ice-cream cones) and drops your choice wherever you click the cursor. Erasers include the Black Hole, which swallows up the artwork, and Firecracker, which blows everything to smithereens. Sounds include English and Spanish pronunciation of alphabet letters. Version 1.0 reviewed. Version 1.2 shipping. Requires Mac Plus or later; sound recording requires System 6.07 or later and a microphone; color display system recommended. \$59.95. Brøderbund Software, Inc., 500 Redwood Blvd., P.O. Box 6125, Novato, CA 94948. 800-521-6263 or 415-382-4400. (Aug '91) ★ '91 Eddy [MF#738]

MacPaint \$\$\$

MacPaint, the original black-and-white pixel-pusher, hasn't completely lost its shine after all these years. Now supports multiple windows, design templates, and a magic eraser for corrections. Lacks free-rotation and advanced image-distortion capabilities. A good starter package for kids, and a decent paint program if you only need basic doodling capability. Version 2.0 reviewed. Requires Mac Plus or later; hard drive recommended. \$125. Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052. 408-727-8227. (July '88) ★ '85, '87 Eddy [MF# 739]

Painter \$\$\$\$

This powerful color-painting program imitates the behavior of natural media such as chalk, crayons,

felt-tipped pens, airbrushes, and watercolors. Easy-to-use interface needs plenty of screen area. Comprehensive features allow extremely sophisticated control over brush marks, transparency, and simulated textures of canvas or paper surfaces. Provides adjustable color dispersion and blending, masking, and anti-aliasing. Supports Wacom pressure-sensitive digitizing stylus and tablet. Version 1.0 reviewed. Version 1.2 shipping. Requires 68020 CPU or higher, System 6.05 or later, a color display system, a hard drive, and at least 2.5 MB of RAM; digitizing tablet recommended. \$349. Fractal Design Corp., 335 Spreckels Dr., Ste. F, Aptos, CA 95003. 408-688-8800 or 408-688-5300. (Feb '92) ★ '91 Eddy [MF# 740]

Photon Paint \$\$\$\$½

Photon Paint doesn't rival its high-end competition, but it does offer a workable painting environment, multiwindow capability, some interesting special effects, and a lower price. Version 1.0 reviewed. Version 1.1 shipping. Requires Mac II with color card and System 6.03 or later. \$149.95. MicroIllusions, Inc., 13464 Washington Blvd., Marina del Rey, CA 90291. 310-822-9200. (May '89) [MF#741]

Photoshop \$\$\$\$

Photoshop is a professional, 32-bit photo-retouching program that combines powerful image-editing capabilities with an unimposing interface. Fast, reliable, and easy to use. Flexible file-conversion options — can import and export images to and from popular graphics file formats for Mac and DOS machines. Comes with many useful special-effects filters for customizing images. Allows on-screen CMYK editing, precise control of color separations, UCR (undercolor removal), and GCR (gray-component replacement). Can open and rasterize EPS files for incorporation into continuous-tone images. Supports PostScript Level 2. Version 2.0 reviewed. Version 2.0.1 shipping. Requires Mac II series or higher with at least 4 MB of RAM, a hard drive (minimum of 150 MB recommended), and a color monitor. \$895. Adobe Systems, 1585 Charleston Rd., P.O. Box 7900, Mountain View, CA 94039. 800-833-6687 or 415-961-4400. (Sept '91) ★ '90, '91 Eddy [MF#742]

PixelPaint \$\$\$\$½

PixelPaint is a straightforward 256-color (8-bit) painting program with a good interface, practical tools, and special effects. Works with many file formats. Four-color-separation capability is built in. Includes PixelScan utility with excellent 8-bit imaging for Sharp and Howtek color scanners. Version 2.0 reviewed. Version 2.1 shipping. Requires Mac II series

with color video card and 2 MB of RAM, System 6.03 or later, color monitor, and hard drive. \$249. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (Oct '89) [MF#743]

PixelPaint Professional \$\$\$\$

PixelPaint Professional's significantly improved interface allows multiple open documents and floating palettes. Offers extensive support for CMYK color separations and provides an independent PostScript text layer. Includes several color-blending and -manipulating tools as well as anti-aliasing capabilities. A serious, powerful tool for electronic artists. Excellent documentation. Version 2.0 reviewed. Version 2.01 shipping. Requires Mac with at least 4 MB of RAM, System 6.05 or later, and a hard drive; 24-bit-color display system recommended. \$799. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. 800-334-3005 or 408-245-2202. (Oct '91) [MF# 744]

Studio/1 \$\$\$\$½

Studio/1 is an excellent black-and-white painting program that also has impressive flip-frame animation capabilities. It has an uncluttered animation surface, painting tools with 300-dpi capabilities, and a HyperCard playback utility (XCMD). Version 1.0 reviewed. Requires Mac Plus or later; hard drive recommended. \$79. Electronic Arts, 1450 Fashion Island Blvd., San Mateo, CA 94404. 800-245-4525 or 415-571-7171. (Sept '89) [MF#745]

Studio/8 \$\$\$\$

Studio/8 is a professional 8-bit (256-color) painting application for the Mac II. Has a superior tool set, an elegant interface, and excellent performance and speed. Version 1.1 reviewed. Version 2.0 shipping. Requires Mac II or LC and higher, a hard drive, and at least 2 MB of RAM. \$295. Electronic Arts, 1450 Fashion Island Blvd., San Mateo, CA 94404. 800-245-4525 or 415-571-7171. (Jan '89) ★ '88 Eddy [MF#747]

Studio/32 \$\$\$\$½

This excellent color-painting program provides many special tools and effects, including airbrush, gradients and blends, smudge, and anti-aliasing. A PostScript text layer keeps letters fully editable and as sharp as the available printer will allow. Its unusual effects include spherization; perspective; free rotation; resizing/stretching; transparency; and the "magic wand," which selects only certain pixels within an adjustable color range. Despite its power, Studio/32 is exceptionally easy to use. Version 1.0 reviewed. Version 1.2 shipping. Requires 24-bit-color display system, at least 5 MB of RAM, and a hard drive. \$695. Electronic Arts, 1450 Fashion

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Island Blvd., San Mateo, CA 94404. 800-245-4525 or 415-571-7171. (Mar '91) ★ '90 Eddy [MF# 746]

SuperPaint \$\$\$

SuperPaint is a combination painting/drawing program that includes features such as plug-in tools, auto-trace, Bézier curves, support for resolutions exceeding 300 dpi, and 24-bit color support. Has sophisticated color controls, texture fills, gradients, and import capabilities. Can save custom palettes for future use, and lets you define colors using RGB, HSB, or CMYK models. Interface is less cluttered and easier to use than in previous versions. Has impressive collection of special-effects tools. Supports Paint, EPS, TIFF, PICT, startup-screen, and SuperPaint 1.0 formats. Version 3.0 reviewed. Requires Mac Plus or later with at least 2 MB of RAM, System 6.05 or later, and a hard drive; 24-bit color display system and minimum 4 MB of RAM recommended. \$199; upgrade, \$65. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Apr '92) ★ '87 Eddy [MF#748]

UltraPaint \$\$\$

UltraPaint is an 8-bit color-graphics program that's best suited for someone new to computer graphics and color, but experienced artists may also find it useful. It's a solid painting package with all the basic tools plus a variety of specialized tools and modes. It does have a somewhat quirky interface. Version 1.0 reviewed. Version 1.05 shipping. Requires Mac Plus or later with System 6.05 or later. \$79. Deneba Software, 7400 S.W. 87th Ave., Miami, FL 33173. 800-622-6827 or 305-596-5644. (Sept '90) [MF#749]

VideoPaint \$\$\$

VideoPaint isn't fast or easy to learn, and it comes with a manual that's difficult to comprehend. This program offers a few special effects that other 8-bit color paint programs can't match, however. VideoPaint includes drivers for Microtek and Sharp scanners, and it can import MacPaint, PICT/PICT2, PixelPaint, color TIFF, LZW, and Studio/8 files. The list of available export formats includes EPS, gray-scale, and PostScript CMYK. Version 1.0 reviewed. Version 1.1a shipping. Requires Mac II series with at least 2 MB of RAM and a color display system; LC version available. \$495. Olduvai Corp., 7520 Red Rd., Ste. A, South Miami, FL 33143. 800-822-0772 or 305-665-4665. (Feb '91) [MF#750]

PRESENTATIONS

Authorware Professional \$\$\$\$\$

A supremely engineered tool for building stand-alone interactive

training applications without programming. Authorware Professional lets you blend sound, video, and animation. By stringing together icons that represent various program components, you create logical, editable sequences. Has good color-graphics and sound controls, limited but useful database functions, and basic calculation and graphing features. Can use many existing XCMDs and XFCNs written for HyperCard and Macromedia Director. Generates detailed printed reports. Supports many videodisc controllers. Version 1.6 reviewed. Version 1.7 shipping. Requires Mac Plus or later; Mac II with a minimum of 4 MB of RAM recommended for color work. \$8,000; for educational users, \$995. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Aug '91) ★ '90 Eddy [MF#751]

CA-Cricket Presents \$\$\$

CA-Cricket Presents is a presentation tool with a strong graphics emphasis. Good master template. Lacks text-import capability. Version 1.0 reviewed. Version 2.1 shipping. Requires Mac Plus or later. System 6.03 or later, and a hard drive. \$199. Computer Associates, One Computer Associates Way, Islandia, NY 11788. 800-531-5236 or 516-342-6000. (Dec '88) [MF#752]

Cinematic \$\$\$

Cinematic is an easy-to-use, frame-based animation tool. Perfect if you need to build on-screen presentations for use in business and education. Not as powerful and feature-rich as programs such as Macromedia Director. Imports and plays existing Aldus Persuasion and Microsoft PowerPoint files. Includes a variety of design templates, including backgrounds and borders. AutoMotion feature combines templates with your customized animations. Has good painting tools and useful controls for sound and music. Imports PICT, PICS, and QuickTime files. Includes CinePlayer playback utility plus many sample animations and XCMDs for use in HyperCard. Version 1.0 reviewed. Requires Mac Plus or later and a hard drive; Mac II series recommended (with at least 4 MB of RAM and a color display system). \$495. Vividus Corp., 651 Kendall Ave., Palo Alto, CA 94306. 415-494-2111. (July '92) [MF#753]

Macromind Accelerator \$\$\$

Macromind Accelerator compiles Macromind Director movies to make them run more smoothly. Version 1.0 reviewed. Version 3.0 shipping. Requires Macromind Director 3.0, Mac Plus or later with at least 2 MB of RAM, System 6.05 or higher, and a hard drive. \$195; upgrade from Version 1.0 (VideoWorks Accelerator), \$50. Macromedia, Inc., 600

Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Dec '88) [MF#754]

Macromind Director \$\$\$\$\$

Macromind Director is unequaled for its combination of interactivity with animated playback of color graphics and sound. By writing routines in Director's scripting language, you can develop interactive animations and also control peripheral devices such as CD-ROM drives, VCRs, and videodisc players. One problem is that its excellent painting-layer tools create bit-mapped images only (except text), so a separate drawing layer would help. Anyone familiar with HyperTalk scripting or similar programming should have no problem with Director. Version 2.0 reviewed. Version 3.0 shipping. Requires Mac Plus or later with at least 2 MB of RAM, System 6.05 or later, and a hard drive. \$995. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Mar '91) ★ '89 Eddy [MF#755]

Magic \$\$\$

Magic is a precise animated-presentation tool that produces near-professional-looking results without requiring professional-level skills. Uses MacDraw-like tools to draw paths for animated objects. Integrates graphics, text, sound, and QuickTime movies. Creation of interactive presentations does not require scripting. Lacks high-end features found in the Macromind Director package. Version 1.1 reviewed. Requires Macintosh Plus or later with at least 4 MB of RAM, System 6.07 or later, a hard drive, and color display system. \$395. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103. 415-442-0200. (Aug '92) [MF#756]

MediaMaker \$\$\$

MediaMaker lets you compile multimedia presentations by controlling and editing output from VCRs, videodisc players, camcorders, and CD-ROM drives. Clean, powerful interface. Also provides simultaneous control of Mac-based animations, graphics, and sound. Can assemble presentation elements and sound onto videotape. With additional Mac hardware, you can overlay titles or other special effects onto live or prerecorded video sequences. Compatible with Sony's LANC communication protocol for controlling video peripherals. Adequate for consumer-level presentations that don't need professional, frame-accurate synchronization. Version 1.1 reviewed. Version 1.2 shipping. Requires color-capable Mac, at least 2 MB of RAM, System 6.05 or later, and a hard drive. \$695. Macromedia, Inc., 600 Townsend St., Ste. 310W, San Francisco, CA 94103.

415-442-0200. (Dec '91) [MF# 757]

MediaTracks \$\$\$\$\$

MediaTracks (formerly called ScreenRecorder) is a utility for recording your on-screen Macintosh activities. Ideal for presentations and training. Uses a tape-recorder model; "tapes" can include sounds recorded with applications such as MacRecorder and can be a fixed length or loop. Recordings can be installed into HyperCard stacks for easier distribution. Version 1.0 reviewed. Requires Mac Plus or later. \$295; Multimedia Pack, \$495. Farallon Computing, Inc., 2000 Powell St., Ste. 600, Emeryville, CA 94608. 510-956-9000. (Dec '90) [MF# 758]

MORE \$\$\$

MORE's outlines can be instantly transformed into presentations. Dozens of templates are provided, and users can also design their own. There is a wide choice of customizable labeling schemes. Slide-making tools are formidable. Version 3.0 reviewed. Version 3.1 shipping. Requires Mac Plus or later, System 6.03 or later, and a hard drive. \$395. Symantec Corp., 10201 Torre Ave., Cupertino, CA 95014. 800-441-7234 or 408-253-9600. (Oct '90) ★ '86, '90 Eddy [MF#759]

Persuasion \$\$\$\$\$

Persuasion is a powerful, comprehensive desktop presentation program. Template-design and outlining capabilities are excellent. Many predesigned templates are included. Lacks a cropping tool, text kerning, and ability to rotate text or graphics. On-screen slide shows are handled well. Can import and display QuickTime movies and EPS or PICT graphics. Publish-and-subscribe capability automatically updates Persuasion images in other applications. With some limitations, Mac and Windows versions of Persuasion can transfer presentations. Includes display-only Persuasion Player application for distribution with finished presentations. Version 2.1 reviewed. Requires Mac Plus or later with at least 2 MB of RAM, System 6.05 or later, and a hard drive. \$495. Aldus Corp., 411 First Ave. S., Seattle, WA 98104. 800-333-2538 or 206-628-2320. (Aug '92) ★ '88 Eddy [MF#760]

PowerPoint \$\$\$\$\$

PowerPoint is an easy-to-use desktop-presentation tool. Good color schemes. Can send presentations to Genigraphics to produce color 35mm slides. Version 2.0 reviewed. Version 2.01F shipping. Requires Mac Plus or later and System 6.03 or later; hard drive recommended. \$395. Microsoft Corp., One Microsoft Way, Redmond, WA 98052. 800-426-9400 or 206-882-8080. (Aug '87) ★ '87 Eddy [MF#761]

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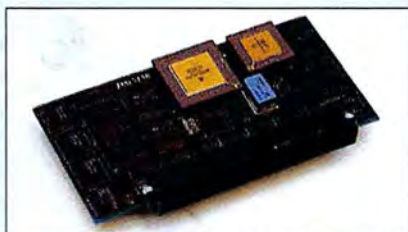
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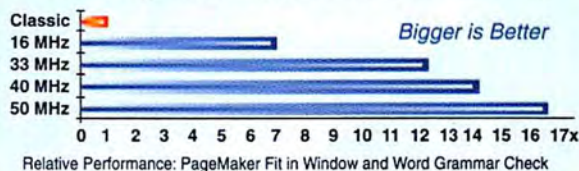
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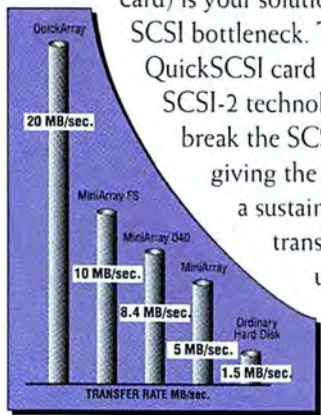
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If you own a Quadra 900 or 950, the MiniArray 040 was designed just for you. The MiniArray 040 uses both built-in SCSI-2 channels. This multi-channeling gives sustained transfer rates of up to 8.4MB per second on a Quadra 950.

The MiniArray FS uses our QuickSCSI PDS card to bring fast SCSI-2 to any Quadra, with effective seek times of less than 5ms and transfer rates of up to 10MB per second.

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MiniArray 040



MiniArray

This Month on ZiffNet/Mac

ZMAC UTILITY

Aliases are icons that act as pointers to files that are stored elsewhere on your hard disk. If you throw a file away, however, its alias remains on your disk, so potentially your desktop can become littered with dozens of unattached aliases. That problem spawned Alias Assassin, a *MacUser* utility that deleted unattached aliases. Alias Assassin has been imitated by at least a dozen programs, but programmer Bill Monk has developed the next generation of alias utilities — AutoAssassin. AutoAssassin kills aliases when you discover that the link to the original file has been lost. If an alias can't find a file, AutoAssassin gives you a standard file dialog box that lets you kill the alias or reattach it to its lost parent. Unlike other alias tools, AutoAssassin is a system extension, which means it's integrated seamlessly into your system. AutoAssassin is available exclusively on ZiffNet/Mac and is available without download charges for one month by typing GO ZMC:POWERTOOLS. After October 25, 1992, find the file AUTOAS.CPT in the Download & Support Forum (GO ZMC:DOWNTECH).

By Ben Templin

V.32bis and Counting . . .

After working for several months on the modem lab report that appears in this issue, *MacUser* associate editor Steve Lipson (72511,177) has this advice for potential modem buyers: "If you do a lot of work on-line or are telecommuting, it's a good idea to get a V.32bis modem. Unlike previous introductions of new standards, V.32bis modems are available at low prices — the least expensive unit we tested was \$399." Find out more about modems (including the lowdown on the upcoming V.fast standard) from Lipson on-line in the *MacUser* Forum from October 12 to 16.

Free (and Nearly Free) Files

Here's a sampling of files recently uploaded to ZiffNet/Mac's Download & Support Forum (GO ZMC:DOWNTECH). The filename and library are in parentheses. The list was compiled by Gregory Wasson.

Academic DataManager (ACADAT.CPT, Library 6) is a HyperCard stack that lets you store and manage bibliographic entries. You can export the entries, and the stack formats them according to the *Manual for Writers*, by Kate Turabian. You have to apply italics, because the files are exported as pure text. Requires HyperCard 2.0 or later. Shareware, \$25.

Business Plan Master (BIZPLA.CPT, Library 5) makes it easy for you to write a complete business plan. Most of the work is already done for you — all you have to do is select the text you want from preformatted templates. Enter your projections, and the spreadsheets generate full financial reports and


analysis (income statement, balance sheet, cash flow, ratios, and so on). Requires Microsoft Excel and Word. Shareware, \$34.

Carpetbag (CARPET.CPT, Library 3) is a control panel that makes resources such as fonts, sounds, and Fkeys available to the system without having them installed in the System Folder. It's not as powerful as the commercial programs Suitcase or MasterJuggler, but it's much more affordable. Includes Laser Path, a System 7-only extension that lets you keep fonts in a folder other than the Extensions folder. Shareware, \$5.

Key Tools (KEYTOO.CPT, Library 3) is a control panel that offers a small subset of the features found in macro programs such as QuickKeys. Features include button selection and date typing. Shareware, \$15.

Mac Bzone (MACBZO.CPT, Library 1) is a 3-D tank battle that's very much like Spectre (but without network support) and extremely well done. Requires at least System 6.0.7 and a 68020 Mac with 68881 FPU combination. Shareware, \$10.

Retriever Lite (RETRIE.CPT, Library 2) is a DA freeware version of the commercial database program, with a spreadsheetlike interface. You can create fields as well as sort, mark, and find records. It's simple and sweet. Great for maintaining lists, addresses, and so on. Freeware.

Stuffit Lite (SITLITE.SEA, Library 1) is the latest upgrade to the shareware version of the commercial compression-and-archiving program. This upgrade is easy to use, and because it's Apple-events-aware, there's potential for scripting. Several features are disabled until you pay the \$25 registration fee. 

Zmac Tip of the Month: Serial of Champions

It's not always obvious that your modem isn't working at its optimum pace. The row of blinking lights may signal activity, but unless you are especially technically adept at deciphering the Morse code of byte activity, you may never know that something is amiss. *MacUser's* exclusive Serial of Champions utility monitors modem performance as the bits flow through the data stream. You can get modem-performance statistics, such as

bytes sent and received and standby time, during a session or when you log off. It also provides an efficiency rating that shows how well your modem is connecting with your remote host.

Serial of Champions was written by Mike Throckmorton and is available exclusively in Library 3 of the *MacUser* Forum (GO ZMC:MACUSER); the filename is SERIAL.CPT.

Bargain Speedsters: V.32bis Modems

High speed doesn't have to mean high prices. Today's superspeed modems leave their predecessors in the dust and have prices anyone can afford.

BY STEPHEN SATCHELL AND STEFAN B. LIPSON

The competition is relentless. When modems transmitted data at a leisurely 300 bps (bits per second), 1,200 bps seemed unattainable. And when 1,200 bps became the standard, 2,400 bps seemed equally out of reach. Now that 9,600 bps is the norm, modems that transmit data at 14,400 bps have appeared. For those who communicate via modem, these new speedsters can save time and money.

A 14.4-Kbps (kilobit per second) modem (short for modulator/demodulator) translates, or *modulates*, your computer's digital data into an analog signal, which it then transmits as a series of audible tones over phone lines — and it does so at a rate faster than any other nonproprietary transmission rate commercially available. A receiving 14.4-Kbps modem then translates the signal — *demodulates* it — back into digital data, which the receiving computer can understand. The trick is to send and receive data quickly and accurately to free up your phone and save you valuable time.

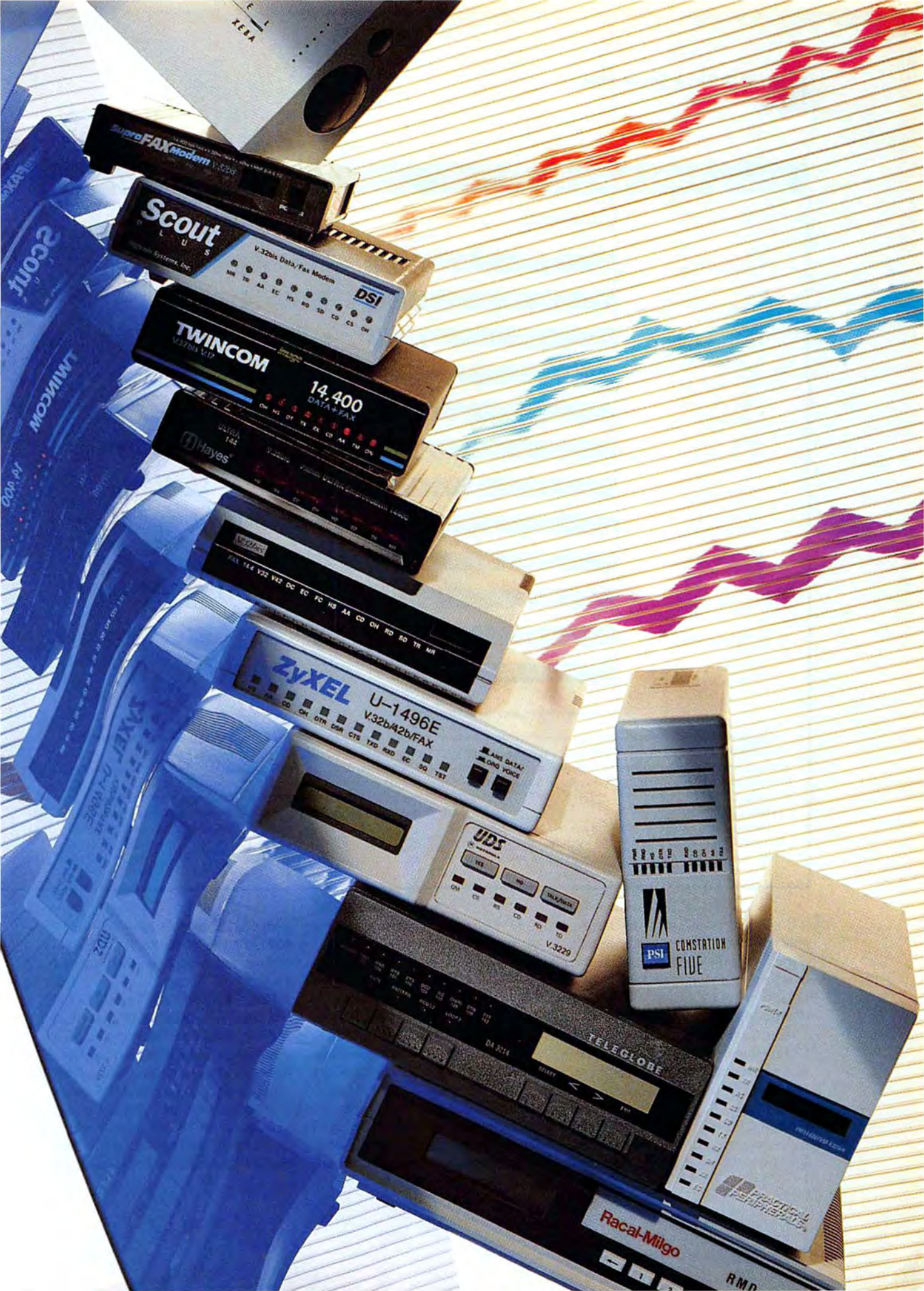


Figure 1: Faster Than Fast



Figure 1: Overall speed on clean, or *unimpaired*, lines is a combination of a modem's ability to compress data effectively and to transmit it efficiently. We ran a series of tests to calculate the throughput of pairs of each of the 12 modems evaluated in this report.

Overall Speed:

Modem transmission speed is measured in bps. Using built-in compression, a modem can achieve throughput rates significantly higher than 14.4 Kbps. Although the modem transmits

data at 14.4 Kbps, the more the file can be compressed, the greater the throughput.

We gave all of the tests equal weight when we calculated the overall score. Although the UDS Motorola V.3229 came out on top by just a hair, the next six modems performed nearly as well. Most of the modems that we tested performed well on our simulated clean lines, although the Racal-Datacom RMD 3222 performed significantly worse than the other modems. All of the results in the above charts are shown relative to that of the UDS

But this speed and precision is possible only if the modems on each end of the communications link speak the same language. One way they can do so is for them to adhere to a suite of standards defined by the CCITT (Comité Consultatif International de Télégraphie et Téléphonie), the international standards body for telephone communications. This alphabet soup of standards — V.22bis, V.32, and V.32bis, for example — defines important features of a given modem. For instance, V.32 (pronounced vee-

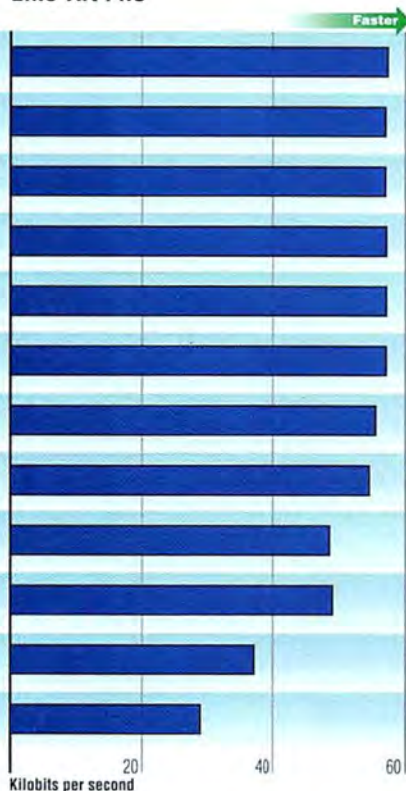
dot-32) indicates that a modem can transmit data at 9,600 bps. V.32bis indicates that the modem can transmit at 14.4 Kbps. Other CCITT standards indicate data compression (V.42bis), error control (V.42), and fax (V.17), to name a few.

To find the fastest and most reliable of the new crop of V.32bis 14.4-Kbps modems, we tested 12 "Mac ready" models — modems that ship with a serial cable that lets you connect them right out of the box to your Mac. With the exception of the Racal-Datacom

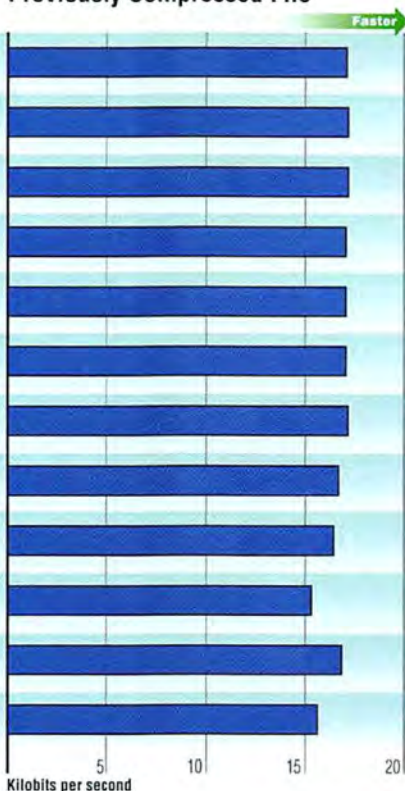
RMD 3222, the Teleglobe DA3214, and the UDS Motorola V.3229, each costs less than \$1,000 — and some of the best cost the least.

We tested each modem under ideal conditions (see Figure 1) as well as under adverse ones (see Figure 2). To accurately assess modem performance, we used several phone-line simulators and impairment generators to create clean as well as noisy phone lines (see the "How We Tested" sidebar) as we measured modem *throughput*, the rate at which each

Line-Art File



Previously Compressed File



Motorola V.3229, which was assigned a score of 1.0.

Text File:

When we transmitted a multipage text document between two identical modems, the Image TWINCOM 14.4/DF and Supra FAXModem V.32bis tied for first, barely beating the UDS Motorola V.3229. Text files are significantly compressible.

Line-Art File:

When we transmitted a TIFF file — a highly compressible format — the UDS Motorola V.3229 took top honors, followed

by the Zoom FaxModem V.32bis. The Racal-Datcom RMD 3222 again performed weakly, even when transmitting a highly compressible file on an ideal line.

Previously Compressed File:

We used a previously compressed file to limit the effect of the modem's built-in compression. The Image TWINCOM 14.4/DF, the Supra FAXModem V.32bis, and the ZyXEL USA U-1496E essentially tied with the UDS Motorola V.3229 in this test.

modem can transmit data. Significant differences emerged, depending on the level of line noise.

Although performance is important, you should consider many other factors before buying a modem: We also evaluated price, design, engineering, documentation, warranty, and technical support.

Why to Buy

V.32bis modems can offer as much as a 50-percent improvement in speed over 9,600-bps modems and as much

as a 500-percent improvement over 2,400-bps modems. Need a translation? If you spend more than a couple of hours a week communicating on-line with a BBS (bulletin-board service) or a home office or transmitting large files to or from a V.32bis-compatible service bureau, you can save a lot of dough with a 14.4-Kbps modem — if your 14.4-Kbps modem is connecting with another 14.4-Kbps modem. A fast modem at each end of the phone line can reduce your connect charges and your phone charges and

free up the line for other users.

Telecommuters and on-the-road executives who use a V.32bis modem with AppleTalk Remote Access (ARA) — Apple's outstanding communications program for System 7 users — (see the "5 Tips for AppleTalk Remote Access" sidebar) will notice yet another benefit: The response to remote-system requests is noticeably faster than with a slower modem. It takes less time to sift through E-mail, navigate a hard disk, paint icons for the files in each folder, and read files

Figure 2: When the Going Gets Tough

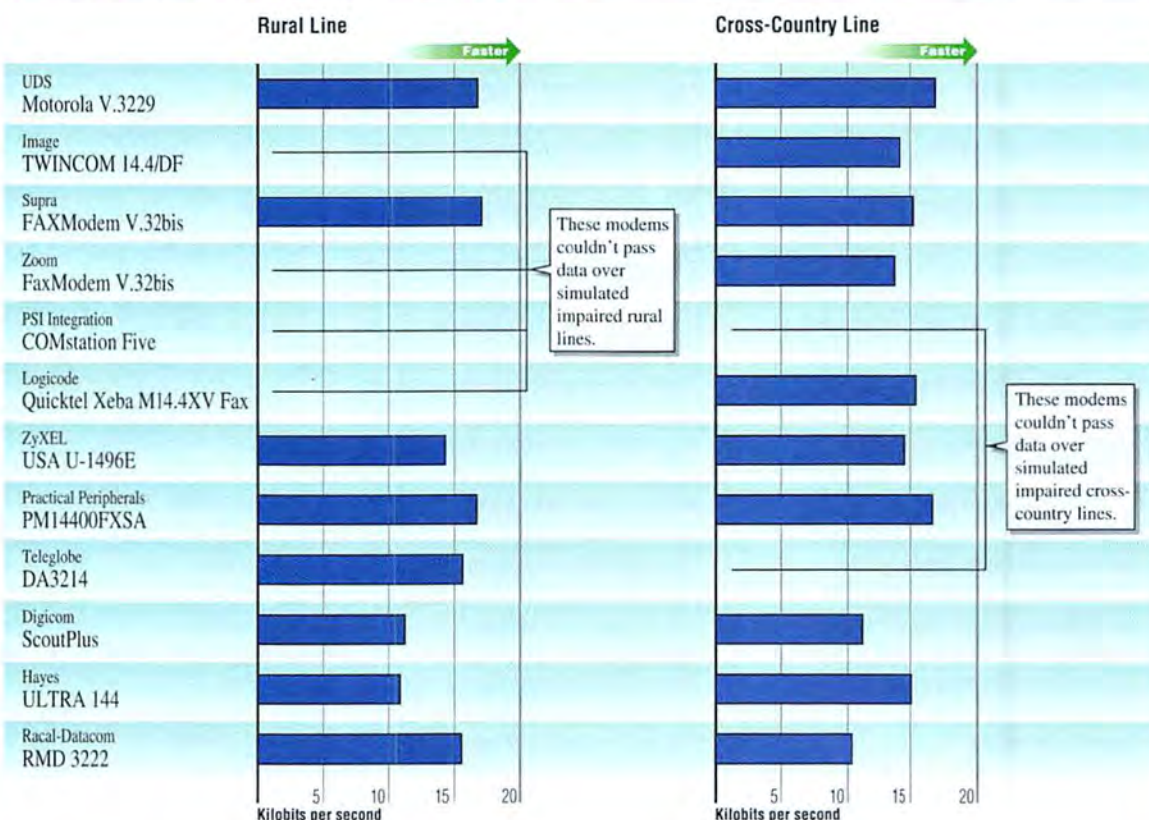


Figure 2: To fully evaluate modem performance, we used sophisticated test gear to simulate line impairments typically found on a *terrestrial*, or cross-country, line and a *long subscriber loop*, or rural line. These tests were performed with previously compressed files only.

Rural Line:

The Image TWINCOM 14.4/DF, Zoom FaxModem V.32bis, PSI Integration COMstation Five, and Logicode Quicktel Xeba M14.4XV Fax couldn't break through the impaired lines to establish a connection. The UDS Motorola V.3229 performed

admirably, easily establishing a connection, even when it was presented with lines more impaired than the ones we used in this test.

Cross-Country Line:

Although the level of impairment in the cross-country-line simulation is somewhat lower than that in the rural-line simulation, neither the PSI Integration COMstation Five nor the Tele globe DA3214 could connect. The cross-country lines suffered from *phase jitter* (an unwanted shift in frequency) and *echo* (an unwanted repetition of the analog signal).

from and write them to the remote location's hard disk.

A company that has two or more LANs (local-area networks) linked by a modem pair and a phone line (a WAN, or wide-area network) should also use a high-speed modem to link the LANs.

Why Not to Buy

Keep in mind that V.32bis modems are not for everyone. Commercial information services such as America

Online, AppleLink, CompuServe, and GENie don't support V.32bis — yet — so a high-flying modem will have its digital wings clipped: You'll send and receive data at no more than the 9,600-bps top speed that most services offer.

The lack of 14.4-Kbps support from on-line services isn't the only reason to just say no to modem upgrades. Many businesses that already have modems in place ask why they should upgrade when the 9,600-bps modem

they have is sufficient. They shouldn't upgrade. If the average weekly time you spend on-line can be measured in minutes, not hours, a 9,600-bps modem is more than adequate.

For those who want to provide high-speed-modem access to several people in their office but find the cost of multiple modems and phone lines prohibitive, using a networked Shiva NetModem/E may be a cost-effective way to upgrade to 14.4 Kbps (see the "Not Just the Party Line" sidebar).

Before You Buy

To get the most out of a V.32bis modem, you should do some groundwork before you buy. A few minutes spent up front can save hours of headaches later.

Ideally, you should dedicate a telephone line to each V.32bis modem you plan to install. One or more phones attached to a single line can distort and impair the signal on the line, even when the receiver is "hung up." An impaired line of this sort can make your V.32bis modem drop to a slower speed — *fallback* — and transmit data at a slower rate of 12,000, 9,600, 7,200, or 4,800 bps. Cordless telephones can be a particular nuisance, because the radio-frequency energy they generate may give your modem cause for pause.

Software is a critical part of modem communications, so make sure your software is up to the job. Of the modems we reviewed, the Hayes ULTRA 144, Racal-Datcom RMD 3222, Teleglobe DA3214, and UDS Motorola V.3229 lack Mac communications software. Although several well-known communication programs are commercially available — FreeSoft's White Knight, Software Ventures' MicroPhone II, and the shareware gem ZTerm, for example — be sure your version is current; older versions can't take full advantage of your V.32bis modem's potential, because they don't support the Mac's faster serial speeds.

Getting Down to V.32bis-ness

Your V.32bis modem will offer you excellent performance, providing that you use a cable that accommodates *flow control* (also called *hardware handshaking*). Flow control ensures that your modem doesn't receive more data in one end than it can pump out of the other. For example, your Mac may unwittingly send excessive data to the modem's buffer (a limited amount of memory in the modem) before the modem has a chance to transmit the data. Without flow control to regulate this data flow, information in the buffer can be overwritten

How We Tested

To assess the performance of our crop of Mac-ready, 14.4-Kbps modems, we enlisted the help of ZD Labs, Ziff-Davis' premier product-testing facility, in Foster City, California. The ZD Labs staff designed and implemented a test suite, using a Compaq DeskPro 386/33L computer equipped with Hayes ESP serial-port boards. To mimic real-world conditions faced by modems in day-to-day use, pairs of identical modems were connected through a PTT (Processing Telecomm Technologies) Telephone Network Simulator. The simulator consists of a PTT 5101 Central Office Simulator, a pair of 5151 Advanced Impairment Generators, and a 5200 Wire Simulator with subscriber-wire ("local loop") cards installed. Professional YAM ("yet another modem" protocol) 17.28 sent a file, and the program GETZ, written by ZD Labs, received the file and recorded the transfer time. This configuration let us simulate any and all transmission scenarios — from very clean to very noisy lines.

Our benchmark tests included a data-compression test, a compatibility test, a clean-line test, and an impaired-line test.

We first downloaded and uploaded several files between two identical modems, using normal unimpaired-line conditions. We then transferred a single file at 14.4 Kbps, 9,600 bps, and 2,400 bps between the modem and a Codex 3260 modem configured to simulate a V.32bis (14.4 Kbps), a V.32 (9,600 bps), and a V.22bis (2,400 bps) modem. Finally, we transferred a previously compressed file over the normal unimpaired-line connection, a bad land-based long-distance (cross-country) connection, a slightly better satellite-based long-distance connection, and a long-distance connection with a long subscriber loop (to simulate a rural line). For good measure, we also checked compatibility under the long-subscriber-loop condition at 14.4 Kbps and at 9,600 and 2,400 bps.

To test the V.42bis compression algorithm of each modem, we used four files ranging from incompressible to highly compressible. To ensure statistically significant results, we created files large enough so that the modem's data pump transmitted a minimum of one million data bits no matter how compressible the file.

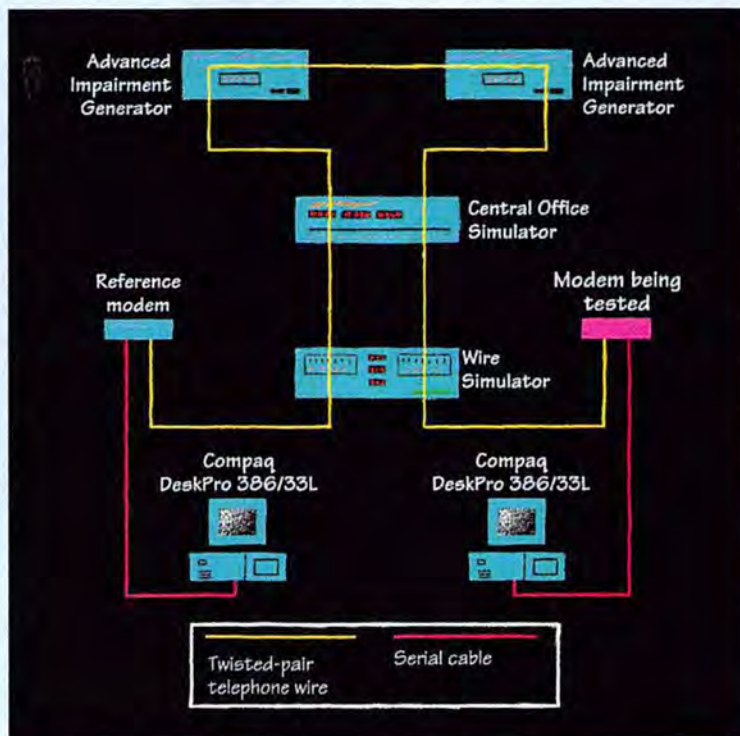


Figure A: At the heart of our modem-testing equipment was a four-stage Telephone Network Simulator from Processing Telecomm Technologies.

Figure 3: The Big Squeeze

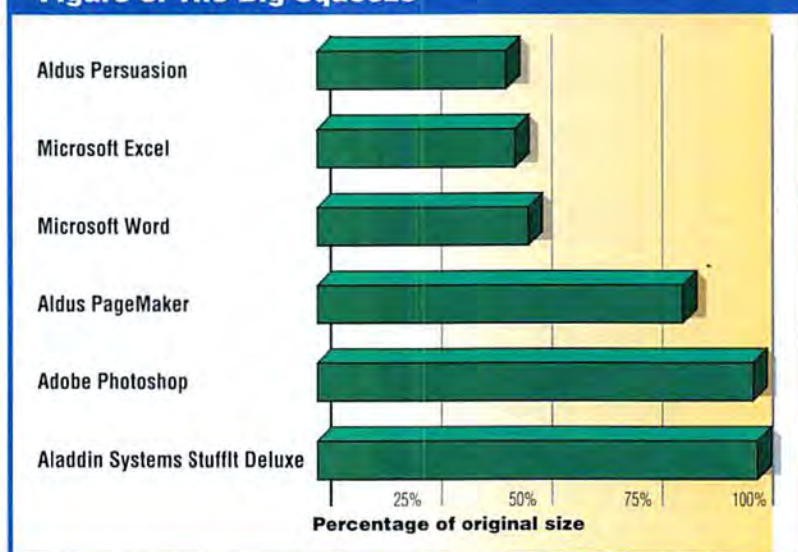


Figure 3: Modem-compression results depend on the nature of the file being compressed. Text files, for example, can be compressed significantly — to less than 50 percent of their original size — whereas complex image files can be compressed less. Here we show the sizes of various file types after modem-based compression. Previously compressed files, such as the Stuffit Deluxe file, gain little from modem-based compression.

(and lost) before transmission.

Although all the modems we looked at came with Mac cables, we tested the cables and recommend that you discard the non-flow-control serial cable that ships with the Digicom ScoutPlus, Image TWINCOM 14.4/DF, and UDS Motorola V.3229 modems and replace it with a flow-control cable.

Ready, Get Set Up, Go!

We found physical installation of the modems a snap. Just plug the power cable in to an outlet, connect the supplied RJ-11 cable between the modem and your phone line, connect the serial cable to the modem port on your Mac, find a suitable spot on your desk for the modem, and install communications software — either provided with the modem or purchased separately — on your hard drive.

Where on your desk to put the modem? The Supra FAXModem V.32bis is the smallest modem we tested — smaller than a VHS tape — so it's easy to find a home for it. Because of

its small size, it's also a good candidate for PowerBook users or to be loaner modems for work-at-homes. The Racal-Datcom RMD 3222, in comparison, is a monster, with a bigger footprint than your office telephone — about 10.0 x 9.6 x 2.7 inches. The Logicode Quicktel Xeba M14.4XV Fax modem's unusual sloping design and unique indicator lights would make it right at home on the bridge of the starship *Enterprise*. The rest of the modems are pretty much the size and shape of, well, modems.

The Teleglobe DA3214 and the UDS Motorola V.3229 have internal power supplies; the rest have external power bricks — cables with an attached power supply or transformer. The Image TWINCOM 14.4/DF, Logicode Quicktel Xeba M14.4XV Fax, Teleglobe DA3214, and UDS Motorola V.3229 modems have the brick toward the center of the cable, so it doesn't interfere with other power cables leading to the wall outlet or surge bar. The plug-in power brick that comes with the Digicom

ScoutPlus, the Hayes ULTRA 144, and the ZyXEL USA U-1496E, which has a three-prong plug molded into it, does get in the way. Most power strips have the grounding pin facing down, so the brick either covers two outlets or dangles over the power-strip switch — a nuisance.

Manual Labor

The manuals we received with these modems ranged from sterling examples of what a manual should be to documentation that could scare away even the most intrepid modem maven. Although most users simply plug a modem in and get on-line, others want to set certain parameters (such as compression parameters) to suit their own needs; to be useful, a modem manual should offer practical and easy-to-understand information on all aspects of modem use.

Kudos to the technical writers and manual designers of the Practical Peripherals PM14400FXSA, the PSI Integration COMstation Five, and the Supra FAXModem V.32bis. They've created manuals that are understandable by novices and informative for experts. The Practical Peripherals

Not Just the Party Line

Buying one or two modems isn't so bad, but buying high-quality, high-speed modems for everyone in an office can cost you some serious dollars — especially if you consider the monthly charge you'll have to pay for any extra phone lines.

Enter the \$1,699 Shiva NetModem/E. This full-service V.32bis modem with V.42 error control and V.42bis data compression satisfies a slew of telecommuting needs. It has a built-in Ethernet port for direct connection to your Ethernet network, so everyone on the network can share a single NetModem/E — and you need only a single phone line!

Once the modem has been installed, you access it simply by selecting it in the Chooser, just as you would a printer or a file server. As a shared resource, the NetModem/E lets everyone on a network who has the password use it. The NetModem/E also allows remote users with a modem to dial in to the

PM14400FXSA includes a Rolodex card containing the company's technical-support number — by far the best quick-reference card of the modems we tested. The PSI Integration COMstation Five caters specifically to Mac users: The documentation is presented in a way that helps novices get started using the product and then, at their leisure, delve deeper into the COMstation Five's more advanced features. The Supra FAXModem V.32bis is also Macintosh-oriented and easy for novices to use, although its manual is a notch below that of the PSI Integration COMstation Five in organization.

On the other end of the spectrum, watch beginners recoil in horror as they try to wade through the Racal-Datcom RMD 3222's manual. Our guess is that it was written by modem engineers for modem engineers, preferably ones with years and years of modem experience. The UDS Motorola V.3229's manual is a bit better, but its sheer size and the number of options described may dull your intellectual appetite.

The rest of the manuals are less imposing and don't come up to the

5 Tips for AppleTalk Remote Access

When some people hear the word *telecommunications*, they think trouble. AppleTalk Remote Access (ARA) is no trouble at all, provided you follow a few simple rules. ARA lets you easily connect with another modem-equipped Mac and gain access to files, folders, and network resources to which you have been granted access.

1. Get a CCL file from the vendor. Besides ARA itself (either purchased separately or bundled with PowerBooks), you need a suitable modem, a CCL (connection control language) script for the modem, the correct serial cable, and good telephone lines. If you are purchasing a modem and you expect to use ARA, be sure to contact the modem vendor to find out where (or when) you can get the CCL file. Remember, no CCL file, no ARA.

2. Write your own CCL script. If you can't shake a CCL file loose from the modem vendor and if you aren't intimidated by a little high-level scripting, you may choose to "roll your own" CCL file. To do so, you'll need the AppleTalk Remote Access Modem Toolkit, available from APDA (Apple Programmer's and Developer's Association).

3. Avoid the wrong hotels. Your plane was late and you arrived at the hotel late, but you're uplifted, because you know that you can, from your *très elegante* hotel room, still use ARA to get on-line with your office Mac. Then why can't you connect? Simple: Some hotels — even some upscale inns — have low-grade phone switches that make high-speed telecommunication a nightmare. Unfortunately, there's no real cure for this, except to learn which hotels have good phone systems and which don't.

4. Grant access to others. When configuring users and groups for ARA, it's a good idea to set up several backup users with varying degrees of access. If an emergency arises and you must give someone else limited on-line access to your machine, you can do so without revealing your password.

5. Double-check your modem. If you're having trouble connecting, don't immediately blame ARA — you may have forgotten to tell your office modem that you were planning to drop in. Don't forget to set your office modem for auto-answer before leaving for a telecommuting weekend. If you don't set it to auto-answer mode, your office modem won't answer your incoming call and you'll be stuck without the advantages of remote computing.

network from an off-site location.

One NetModem/E can handle only one call at a time, but if you have more than one NetModem/E on your network, you can select a group of them in the Chooser and if one is busy, your request will automatically be routed to one that's available. The NetModem/E also has a built-in half router, a network device that — when used in tandem with another NetModem/E — lets you communicate between two LANs (local-area networks).

For those who must satisfy the needs of Mac users and of those of the bluish persuasion, Shiva offers cross-platform support for AppleTalk as well as Novell NetWare networks.

Finally, the NetModem/E transmits phone-line sounds over the network and plays them through your Mac's speaker, so you always know your connection's status. Shiva Corp., One Cambridge Center, Cambridge, MA 02142; 800-458-3550 or 617-252-6300.

standards set by the top three manuals. The manuals provided with the Hayes ULTRA 144 and the Zoom FaxModem V.32bis are suitable for beginners. Those for the Digicom ScoutPlus, the Image TWINCOM 14.4/DF, and the Telelobe DA3214 can be easily understood by users with previous modem experience, but those for the ZyXEL USA U-1496E and the Logicode Quicktel Xeba M14.4XV Fax should be reserved for guru-level communicators — beginners and intermediate users will find them tough sledding.

Bells, Whistles, and Fuzzy Dice

Modem makers distinguish their products from the competition by offering a wide range of features. Five modems — the Image TWINCOM 14.4/DF, Supra FAXModem V.32bis,

PSI Integration COMstation Five, Zoom FaxModem V.32bis, and ZyXEL USA U-1496E — offer 14.4-Kbps (V.17) fax capabilities. The Digicom ScoutPlus, Logicode Quicktel Xeba M14.4XV Fax, and Practical Peripherals PM14400FXSA modems offer slower 9,600-bps fax transmission and reception.

All the fax-equipped modems come with fax software that lets you send and receive fax files. The Logicode Quicktel Xeba M14.4XV Fax, Supra FAXModem V.32bis, Zoom FaxModem V.32bis, and ZyXEL USA U-1496E come with FAXstf, from Stf Technologies; the Digicom ScoutPlus, Image TWINCOM 14.4/DF, Practical Peripherals PM14400FXSA, and Zoom FaxModem V.32bis come bundled with Quick Link II, from Smith Micro. PSI Integration is the only modem maker in this group to

include its own fax software, COMstation FAX.

All the modems we tested also feature error control and data compression. Early modems didn't bother to check whether the data at the receiving end was the same as the data that was transmitted. To address this problem, Microcom built error control in to its line of modems in 1983. Thus was born MNP (Microcom Networking Protocol).

With MNP 4 error control, the modem checks transmitted data for errors and then retransmits the bad data. In 1985, Microcom introduced MNP 5, a method of real-time data compression, followed soon after by MNP 7, a more efficient compression scheme.

The CCITT has since defined its own standards for error detection and data compression, referred to as V.42 and V.42bis, respectively (to better understand the benefits of compression, see the "Making More of 14.4" sidebar).

Down and Dirty

The mettle of a modem is measured by its ability to move data through telephone connections of varying quality. Although your modem may establish a connection on a line that is free of noise, *line impairments*—noise and signal variations that degrade the quality of a connection—are not uncommon.

Our impairment testing simulated a wide range of possible connections, from the very best to the very worst. Most of the modems passed data easily over our unimpaired connections (see Figure 1), but a few couldn't connect over impaired lines (see Figure 2). Of particular concern was the poor performance some of the modems exhibited on a *long-subscriber-loop connection*, a simulation of a long-distance, rural phone connection. The Image TWINCOM 14.4/DF, Logicode Quicktel Xeba M14.4XV Fax, PSI Integration COMstation Five, and Zoom FaxModem V.32bis were unable to establish a connection on the

simulated rural lines, because of *attenuation distortion*, a warping of the signal amplitude.

In our tests simulating impaired cross-country lines, neither the PSI Integration COMstation Five nor the Teleglobe DA3214 could pass data across the line, because of *phase jitter* (an unwanted shift in frequency) and *echo* (an unwanted repetition of the analog signal).

Three of the modems performed well in all our test cases: The Practical Peripherals PM14400FXSA, the Supra FAXModem V.32bis, and the UDS Motorola V.3229 combine a robust *data pump*—the chip or set of chips that "pumps" data through the modem—with good data compression and error control. The Supra FAXModem V.32bis and the UDS Motorola V.3229 in particular were very fast.

Lights, Modems, Action!

Everybody loves flashing lights, particularly when those lights help take the mystery out of modems. For connection and transmission, modem users have come to expect LED or LCD displays that provide status information such as Transmit Data, Receive Data, Line in Use, Auto-Answer Enabled, and Carrier Present (connection established).

The Supra FAXModem V.32bis has a small three-character LED display with easy-to-understand mnemonics such as OK and FX for fax. The Practical Peripherals PM14400FXSA offers the best display: flashing messages such as "Connect at 14.4/Quality High/Compression V.42bis" tell you exactly what's what. Instead of an LED-and-letter display, the Logicode Quicktel Xeba M14.4XV Fax has a set of esthetically pleasing—although nonstandard—illuminated icons.

The Racal-Datcom RMD 3222, the Teleglobe DA3214, and the UDS Motorola V.3229 offer another plus—front-panel setup and testing. These three modems use a menu selection scheme with an LCD display to let

Serial of Champions

Interested in seeing just how well your modem performs? Then download Serial of Champions, a MacUser communications utility available only on ZiffNet/Mac, MacUser's on-line service.

Serial of Champions monitors your modem's performance as you work on-line, providing useful statistics in an easy-to-read format. Bar graphs show the percentage of time you spend sending and receiving data as well as the

amount of time both the local and the remote machines need to process the data. In addition, Serial of Champions shows you the overall efficiency of your on-line sessions, based on your modem's maximum possible transmission speed.

Serial of Champions is available in the ZiffNet/Mac MacUser Forum (GO MACUSER) in Library 3 (MacUser Utilities); the filename is SERIAL.CPT.

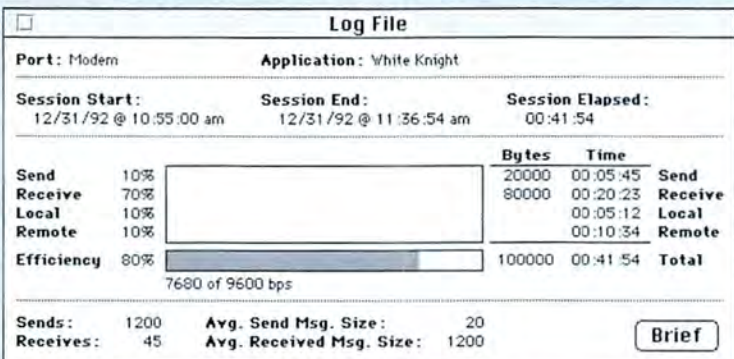


Figure B: Serial of Champions, a free utility downloadable from ZiffNet/Mac, provides vital stats on your modem's performance.

Making More of 14.4

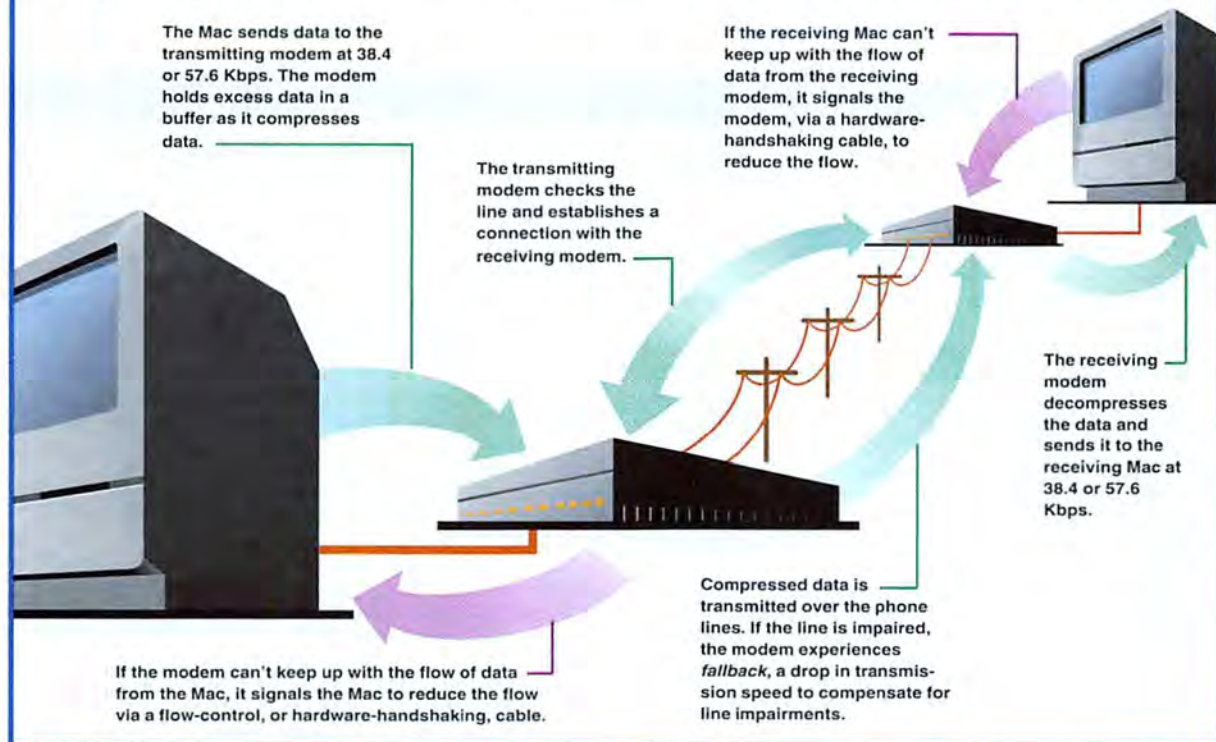
How can a V.32bis modem transmit data at as much as four times its rated speed of 14.4 Kbps? The transmitting modem compresses a file to one-fourth its size before it sends it, and the receiving modem restores the file to its original size. This requires close communication between modems and Macs.

Computer data, whether in a spreadsheet, word-processing document, or image file or even in an application file itself, has certain recognizable patterns. A compression algorithm such as the Ziv-Lempel variant, used in V.42bis modems, takes advantage of the patterns that recur within a file. The compression algorithms look for all the possible duplications and reduce

each duplicated occurrence to a single code.

Because the modem is compressing the data and then sending it at 14.4 Kbps, the data-flow rate *into* the modem must be significantly higher than 14.4 Kbps so that enough data is available for compression.

If the data is already compressed and the modem's compression algorithms can't make it any smaller, *flow-control* communications between the modem and its Mac prevent the modem from drowning in data by constricting the flow when the modem's buffer is full. Flow control then increases the flow of data to the modem when the modem is ready for more.



you configure the modem and perform a variety of self-tests to guarantee that the modem is working the way you expect it to.

When You're Down and Troubled

When you need a helping hand, you rely on your modem vendor's technical-support service. To evaluate the kind of technical support you can expect to get in your hour of need, we made calls to each vendor — without identifying ourselves — and asked for help in getting ARA to work with the company's modem.

We wanted to learn if the modem

vendors would respond promptly and with the correct information. First, they needed to know the Macintosh well enough to be aware of ARA. They also needed to know that ARA requires a CCL (connection control language) file, a short script that enables the modem to work with ARA. Finally, they needed to tell us where we could get a CCL file. The responses to our inquiries ranged from excellent to Teleglobe's near-complete ignorance of the Mac.

The PSI Integration COMstation Five came with a CCL file on its fax-software disk — although not where the tech-support person said we'd find

it. To its credit, PSI Integration was the only vendor to include a CCL file with its modem.

Hayes' technical support got us the correct information as fast as our V.32bis modem could download it. Hayes' phone-menu system got us to the appropriate tech-support representative in seconds. He provided us with the correct answers and gave us a toll-free BBS number for obtaining Hayes' CCL file. The Supra tech-support representative was almost as good, pointing us to AppleLink and CompuServe for Supra's CCL file. The Logicode representative sent us a CCL file in the mail.

Then there was the "What's a Mac?" crew. The technical-support representatives at Digicom, Image, Racal-Datcom, and Teleglobe gave us no useful information, saying that they didn't know about ARA or Mac systems. The representative at UDS Motorola even went so far as to say, "Our modem doesn't work with AppleTalk Remote Access" — *any* modem can work with ARA, as long as the proper CCL file is present.

In between the best and the worst

were the representatives at Practical Peripherals and ZyXEL USA, who didn't have a CCL script when we called but promised to send one as soon as it became available.

And finally, there was Zoom. We were persistent, calling more than 50 times over several days with only a busy signal to show for it. When we finally got through, the Zoom representative didn't have a CCL file and didn't know when one would become available.

The Final Connection

If you spend more than a few hours communicating via modem each week, investing in a V.32bis 14.4-Kbps modem is certain to save you time and money. With list prices starting at \$399, many of these modems are surprisingly affordable — and when you compare price with quality, you'll discover that more money doesn't necessarily mean a better modem. The lowest-priced modem, the Supra FAXModem V.32bis, is one of

On the Horizon

Who better to benefit from the speed of a V.32bis modem than an on-the-go PowerBooked executive? And what better way to achieve total portability than with an internal PowerBook modem that need not be plugged in to a phone line?

Applied Engineering is promising this ultimate in convenience — and more — with a new line of personal portable communications products for wireless and standard telephone connections.

The first Applied Engineering product is a battery-operated communications interface that lets you plug your cellular phone in to any modem. The second communications product offers fully functional telephone capabilities over standard telephone lines. It also includes speakerphone, digital voice-mail, and answering-machine functions and provides optional support for caller-ID services along with 14.4-Kbps fax transmission, with an OCR option, and V.32bis data transmission. These capabilities will be offered in an internal unit for your PowerBook 140, 145, or 170 or in an external case for desktop use.

Finally, at the top of the Applied Engineering line is a fully functional cellular phone and V.32bis cellular modem that either fits neatly inside a floppy-drive-sized desktop case or inside the floppy-drive bay of your PowerBook 140, 145, or 170. If you opt for the internal PowerBook version, Applied Engineering will repack your PowerBook's floppy drive in an external case with a cable that plugs in to an industry-standard PCMCIA slot in the internal CommPort cellular-phone unit.

Toward January, all telephone-capable Applied Engineering products will ship with Norris Communications' EarPhone, an ingenious one-piece microphone/speaker combination that fits inside your ear. As you speak, the EarPhone picks up sound vibrations directly from your skull (through bone conduction) rather than from the air, thus eliminating interference from ambient noise. Applied Engineering's top-of-the line cellular unit for the PowerBook will include a wireless EarPhone. Prices were not set at press time, but don't expect any of the products to be cheap — neither were the now-ubiquitous cellular phones when they first appeared. Applied Engineering, 3210 Beldine, Dallas, TX 75234; 800-554-6227 or 214-241-0055.

For those travelers who don't need to transform their PowerBook into a speakerphone or an answering machine and who are satisfied to trade the convenience of wireless communications for the economy of standard telephone lines, Global Village Communication has introduced the PowerPort/Gold (\$795), the first V.32bis *internal* modem with V.42 error control and V.42bis data compression. This compact data/fax modem

fits completely inside the PowerBook's internal slot — nothing dangles off the back of your Mac.

The PowerPort/Gold includes Global Village's proprietary GlobalFax software, which lets users create custom cover sheets, forward faxes, and send to groups or multiple destinations. (Although the PowerPort/Gold arrived too late for us to test it for this lab report, you can find a brief review of it in this issue's Quick Clicks). Global Village Communication, Inc., 685 E. Middlefield Road, Building B, Mountain View, CA 94043; 800-736-4821 or 415-390-8200.

By the time you read this, PSI Integration should have announced the PowerModem III, the company's own V.32bis fully internal fax modem for the PowerBook series. The PowerModem III includes 14.4-Kbps fax capability and will have a suggested retail price of \$799. PSI Integration, 851 E. Hamilton Avenue, Suite 200, Campbell, CA 95008; 800-622-1722 or 408-559-8544.

The V.32bis standard will soon be facing a new challenger, aptly named V.fast. V.fast promises transmission rates of 24 to 28 Kbps, the fastest analog transmission rate possible. Although the V.fast standard has yet to be ratified by the CCITT, expect to see manufacturers jump on the supercharged bandwagon when the CCITT gives thumbs up, possibly early in 1993.

Further down the phone line, you can expect to see the world of analog communications — including modems — vanish when ISDN (Integrated Services Digital Network) appears. The bandwidth of basic ISDN — 64 Kbps — dwarfs that of present-day analog phone lines. ISDN represents a digital link between a sending and a receiving computer, with no A/D (analog/digital) or D/A (digital/analog) conversion.

At present, all analog communications must suffer four such conversions during transmission between two modems: from digital to analog at the transmitting computer; from analog to digital at the local telephone switch; from digital to analog at the receiving telephone switch; and finally, from analog to digital at the receiving modem. ISDN precludes all this by sending a digital signal from one location to another.

Although basic ISDN service can run over standard twisted-pair phone lines, additional hardware, software, and reconfiguration charges will not make ISDN cheap or imminent. But when twisted-pair phone lines are replaced by fiber-optic cable and when those cables lead to every home and desktop, you can expect transmission rates to go through the roof and dramatic changes to occur in the quantity and quality of information available to all.

The Bottom Line

Modem vendors continue to offer more speed for less money. A 14.4-Kbps V.32bis modem is 50 percent faster than the V.32 9,600-bps modems that appeared just two years ago. Even more amazing is that advances in digital-signal-processing technology make the new V.32bis modems far less expensive than early V.32 modems — although prices for V.32 modems are now dropping.

What surprised us is that price proved to be a poor predictor of performance. Our top honors for best V.32bis Mac-ready modem are split between the **Practical Peripherals PM14400FXSA** (\$579 list, \$420 street) and the **Supra FAXModem V.32bis** (\$399 direct), each of which moved data well over poor telephone connections in our tests. The surprise is that the Supra FAXModem V.32bis is the least expensive modem in the group.

The **UDS Motorola V.3229** (\$1,145 list, \$890 street) is the most expensive modem of the bunch, but the extra money buys you the best possible data transfer under all conditions. Although you might put the Supra FAXModem V.32bis or the Practical Peripherals PM14400FXSA on your desk, the UDS Motorola V.3229 is the modem to go into the phone closet with your servers — it's so reliable that you can set it and forget it.



Our three top picks from the V.32bis pack (left to right): the Supra FAXModem V.32bis, the Practical Peripherals PM14400FXSA, and the UDS Motorola V.3229.

the top performers; it also boasts good documentation, V.17 fax, and technical support (including on-line support), and it's *tiny* to boot — one very nice value.

Granted, V.32bis modems, like the V.32 9,600-bps modems before them, will be surpassed in the future — developments such as V.fast and ISDN promise ever higher speeds (see the "On the Horizon" sidebar).

But if you need speed right now and don't want to be left behind, a 14.4-Kbps modem will let you keep pace in the world of telecommunications — without putting a huge dent in your budget.

Stephen Satchell is a telecommunications expert who is presently knee-deep in international modems at ZD Labs. **Stefan B. Lipson** is a *MacUser* associate editor.

Table 1 Criteria

- List price** — The manufacturer's suggested retail price.
- Street price** — The average actual price charged by a sample of dealers around the U.S. in July 1992.
- Standards supported** — The communications standards the modem supports.
 - Bell 103** — A standard for a transmission speed of 300 bps.
 - Group 3 fax** — The CCITT standard for fax data compression.
 - V.17 fax** — The CCITT standard for sending fax documents at 14.4 Kbps (kilobits per second).
 - MNP 5** — The Microcom modem-to-modem data-compression scheme still used by many modems on BBS and information services.
 - V.42** — The CCITT standard for error control.
 - V.42bis** — The CCITT standard for data compression.
- Fax capabilities** — Can the modem send and/or receive facsimile transmissions?
- Software included** — Telecommunications and/or fax software bundled with the modem.
- Error control** — The verification scheme the modem uses to ensure accurate data transmission.
- Data compression** — The scheme the modem uses to reduce file sizes based on recurring patterns in the file.
- Indicator lights** — The number of LED or LCD indicators and the length of any character display (excluding a power indicator).
- Data-pump manufacturer** — The manufacturer of the data-pump chip set and its algorithms.

But Wait, There's More . . . A Directory

The 12 modems we tested for this report come equipped with a Mac-ready cable — you can hook them up and get on-line almost as soon as you open the box. However, dozens of other V.32bis modems are available today or will be soon.

Remember, if you buy a modem, be sure to ask your dealer for a Mac-to-modem serial cable that supports *flow control*, also known as *hardware handshaking* — without it, your 14.4-Kbps speedster will never achieve its full potential.

AT&T/Paradyne
8545 126th Avenue N.
P.O. Box 2826
Largo, FL 34649
800-482-3333
813-530-2000
813-530-2103 (fax)
Comsphere 3810, \$1,195
Comsphere 3820, \$995
Comsphere 3830, \$795

Best Data
9304 Deering Avenue
Chatsworth, CA 91311
800-632-2370
818-773-9600
818-773-9619 (fax)
Smart One 1442FX, \$499

Cardinal Technologies, Inc.
1827 Freedom Road
Lancaster, PA 17601
800-233-0187
717-293-3000
717-293-3055 (fax)
14400V32bis, \$449

Computer Peripherals, Inc.
667 Rancho Conejo Blvd.
Newbury Park, CA 91320
800-854-7600
805-499-5751
Viva 14.4/FAX, \$469

CXR Telcom
521 Charcot Avenue
San Jose, CA 95131
800-537-5762
408-435-8520
408-435-1276 (fax)
1445-AMD1, \$895
1445-AMD2, \$825
1445-FX1, \$925
1445-FX2, \$955
1445-FXD1, \$895
1445-FXD2, \$925
1446-FDX1, \$695

Digicom Systems, Inc.
188 Topaz Street
Milpitas, CA 95035
800-833-8900
408-262-1277
408-262-1390 (fax)
ScoutPlus, \$545
9624E+, \$1,095
9624LE+, \$695

E-Tech Research, Inc.
3526 Ryder Street
Santa Clara, CA 95051
800-328-5538
408-730-1388
408-730-2488 (fax)
P1496MX, \$575

FastComm Communications Corp.
45472-3 Holiday Drive
Sterling, VA 20166
800-521-2496
703-318-7750
703-787-4625 (fax)
FDX 9642 T, \$1,199
FDX 9642 TRM, \$1,199
FDX 9642 TS, \$1,299

Forval America, Inc.
Modem Division
9160 S. 300 West
Suite 6
Sandy, UT
800-367-8251
801-561-8080
801-561-8777 (fax)
SA14400, \$995

Galaxy Networks, Inc.
9348 De Soto Avenue
Chatsworth, CA 91311
818-998-7851
818-998-1758 (fax)
Gemini V.32B Superquad, \$995

General DataComm, Inc.
1579 Straits Turnpike
Middlebury, CT 06762
800-777-4005
203-574-1118
203-758-8507 (fax)
GDC 914, \$795
GDC 914ADR, \$1,145

Global Village Communication, Inc.
685 E. Middlefield Road
Building B
Mountain View, CA 94043
800-736-4821
415-390-8200
415-390-8282 (fax)
PowerPort/Gold, \$795

GVC Technologies, Inc.
376 Lafayette Road
Building B
Sparta, NJ 07871
800-289-4821
201-579-3630
201-579-2702 (fax)
FM144/144V, \$399
SM144V, \$659

Hayes Microcomputer Products, Inc.
5835 Peachtree Corners E.
Norcross, GA 30092
404-840-9200
OPTIMA 144, \$479
ULTRA 144, \$999

Image Communications
6 Caesar Place
Moonachie, NJ 07074
800-666-2496
201-935-8880
201-935-6548 (fax)
TWINCOM 14.4/DF, \$549

Intel Corp.
5200 N.E. Elam Young
Parkway
Hillsboro, OR 97124
800-538-3373
503-629-7354
503-629-7580 (fax)
14.4EX, \$549
SatisFAXtion/400e, \$549

Lightning Communications
36 Argonaut
Suite 150
Aliso Viejo, CA 92656
800-433-4420
714-457-8001
714-457-8004 (fax)
LightCom 144FB, \$329

Logicode Technology, Inc.
1817 De Havilland Drive
Newbury Park, CA 91320
805-499-4443
805-499-8588 (fax)
Quicktel Xeba M14.4XV Fax, \$589

MacProducts USA
608 W. 22nd Street
Austin, TX 78705
800-622-8721
512-472-8881
512-499-0888 (fax)
Magic VX V.32bis, \$259
Magic VFX V.32bis, \$289

Microcom
500 River Ridge Drive
Norwood, MA 02062
800-822-8224
617-551-2251
617-551-1968 (fax)
MicroPorte 4232bis, \$649
QX 4232bis, \$899

Motorola Codex
20 Cabot Blvd.
Mansfield, MA 02048
800-426-1212
508-261-4000
508-337-8004 (fax)
Codex 3220, \$795

MultiTech Systems
2205 Woodale Drive
Mounds View, MN 55112
800-328-9717
612-785-3500
612-785-9874 (fax)
1432BL Multimodem-II, \$999
MT1432BA-Mac, \$899
MT1432MU-Mac (pocket modem), \$899

NEC America, Inc.
Data and Video Communications Systems Division
110 Rio Robles
San Jose, CA 95134
800-222-4632
408-433-1277
408-433-1239 (fax)
N9635EPLUS, \$1,199
N9635ES, \$1,449

Octocom Systems, Inc.
One Executive Drive
Chelmsford, MA 01824
508-441-2181
508-441-9060 (fax)
8196A, \$895
8396A, \$1,195

Penril DataComm Networks
1300 Quince Orchard Blvd.
Gaithersburg, MD 20878
800-473-6745
301-921-8600
301-921-8376 (fax)
2432-01, \$795
2433-01, \$895
2533-01, \$1,095

PerfectData Corp.
1825 Surveyor Avenue
Simi Valley, CA 93063
805-581-4000
805-522-5788 (fax)
PDC 144, \$995
PDC 144/Secure, \$1,048

Practical Peripherals
375 Conejo Ridge Avenue
Thousand Oaks, CA 91361
800-442-4774
805-497-4774
805-374-7200 (fax)
PM1400FXSA, \$579

Prometheus Products, Inc.
9524 S.W. Tualatin-Sherwood
Road
Tualatin, OR 97062
800-477-3473
503-692-9600
503-691-5197 (fax)
Ultima Home Office, \$649

You haven't had this much fun passing a note since the third grade.

cc:Mail for Macintosh Version 2.0 is out. Pass it on.

It's as easy to use and fun to learn as the Macintosh® itself.

With the new cc:Mail™ for Macintosh Version 2.0, you simply click on mail icons to check your Inbox, prepare messages, store messages, or



send memos. And you can send and receive text, files, faxes, QuickTime videos and voice annotations. It also supports System 7 and all its capabilities.

Plus, cc:Mail gives you all the power you'd expect from the world's leading e-mail system. It's the only package of its kind that lets

you send messages effortlessly across Windows™, DOS, OS/2® and UNIX®, without the need for gateways. And its unique, scalable architecture can accommodate your growth, whether you're adding 5 people or 500,000. cc:Mail also expedites the not-so-fun task of finding messages, thanks to a new Message Finder utility. It lets you search for messages according to subject, text, address, date, size, priority or item.

For a free demo disk of the cc:Mail for Macintosh Platform Pack, call **1-800-448-2500.**

cc:Mail. It makes passing a note as much fun as it used to be.

Lotus cc:Mail for Macintosh

HARDWARE THAT FITS



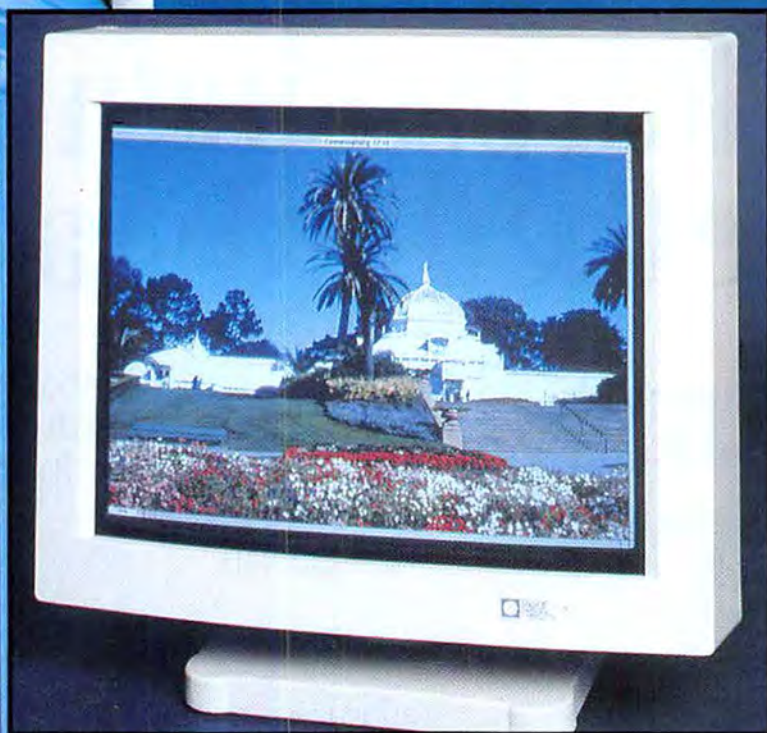
**AT LAST...A 75 Hz
19" Trinitron
multi-resolution
COLOR MONITOR!**

\$1895

Lease price: \$52/month

MULTI-RESOLUTION MONITOR!
Comes standard with 7 factory
pre-sets for different resolutions,
plus 7 programmable settings for
additional video cards.

Our 24-bit system now includes
the RasterOps Paint Board Li with
pan-zoom and extended desktop.
State-of-the-art engineering. On-
board acceleration, 75 Hz vertical
refresh rate. View 16.8 million
colors at 72 dpi! 1024 x 768
standard resolution; will auto-sync
to 640 x 480, 832 x 624, 1024 x
768, and 1152 x 870. Our 8-bit
system includes the RealTech RT-8
video card...a great starter system!
Our monitors use a Trinitron® tube
from Sony.



AFFORDABLE COLOR!
*Breaks the price barrier for
19" Trinitron color monitors.*

CPU	Video	Price
Mac II, IIx, IIcx, IIsi*, IIci, IIfx, SE/30 LC, Quadra 700 & Quadra 950	8-bit system	\$2195
Mac II, IIx, IIcx, IIci, IIfx, Quadra 700 & Quadra 950	24-bit system (accelerated)	2695
Quadra 700 & Quadra 950	On-board video	1895

*IIsi solution retains PDS slot for the RealTech cache card.

**A monitor for every budget! Call
1-800-364-USER, and we'll help you with
peripherals to complete your system.**



RealTech Full-Page Displays

CPU	Monitor	Price
Mac II, IIcx, IIx, IIfx, SE, SE/30, LCII	Mono	\$579
Mac II family, SE/30, IIsi, LCII	GS 256	879
Mac IIsi, IIci, Quadrax	GS 16	449

Only \$449!

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Quality, flicker free images at a price that lets you experience
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Look at us for monitors...

We're not interested in one-shot product sales. Our whole business is based on customer service, and on building relationships.

That's why we've come to be known as America's
ONE-STOP SOURCE FOR CUSTOM SOLUTIONS!

Talk to one of our friendly sales or customer service folks, and they'll help you figure out the right solution for your business, whether you need an SI or a Quadra 950. We'll help you anticipate future requirements, so you don't feel like you're on an upgrade merry-go-round. We won't try to sell you more than what you need. But don't settle for less, either!

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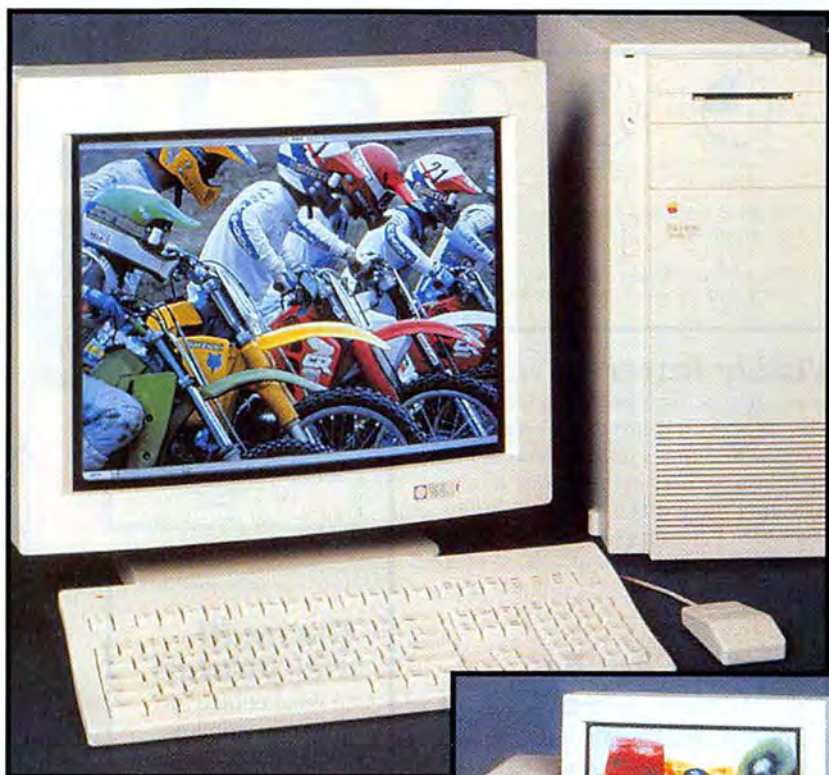
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Toll-free information:

1-800-364-LESS

System solutions.



\$9,699

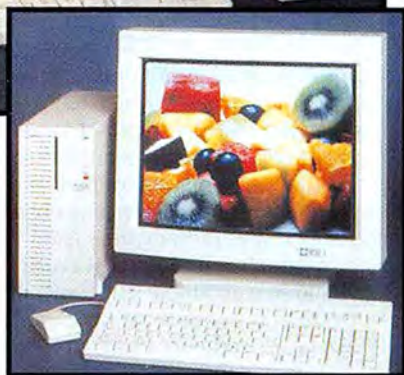
Lease: \$266/mo.

**Quadra 950
RealTech 19"
24-bit Trinitron
System, 425 Mb
Hard Drive, Apple
Extended Keyboard**

\$7825

Lease: \$214/mo.

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RealTech 19"
24-bit Trinitron
System, 210 Mb
Hard Drive, Apple
Extended Keyboard**



\$2195

Lease: \$60/mo.

**Mac LCII 4/80 Sony 8-bit
Trinitron System, MacPro Plus
Keyboard**



\$3139

Lease: \$86/mo.

**Mac IIsi 14" 8-bit Trinitron
System, 5 Mb RAM, 105 Mb Hard
Drive, MacPro Plus Keyboard**



\$4239

Lease: \$116/mo.

**Mac IIfx 14" Seiko 8-bit Trinitron
System, 5 Mb RAM, 210 Mb Hard
Drive, MacPro Plus Keyboard, Cache Card**



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\$82/mo.

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DARE TO COMPARE.



RealTech
Laser



QMS
PS 410



NewGen
Turbo PS/300P



GCC
BLP II



HP LaserJet
IIIP

Print times based on a 5-page Persuasion document*

16:39

17:42

17:54

Unable to finish

31:06

*The graphics-intensive document included grayscale TIFF files, EPS files, text in several fonts and sizes, solid black areas, and reverse type.

Visibly faster. The RealTech laser printers' high performance Weitek RISC processor prints complex documents 4 to 5 times faster than other non-RISC laser writers in their price range. ATM font rendering technology builds raw type characters 4 to 5 times faster. The RealTech uses a new version of the Sharp printer engine that prints 9 pages per minute.

Based on Adobe PostScript® Level 2...

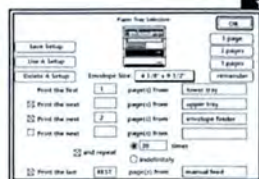
the next generation of Adobe's page description language, which has become the industry standard for defining pages of integrated text and graphics. It contains a number of performance, function and print quality enhancements that save printing time and improve quality. PostScript® Level 2 is compatible with all current application software that supports the PostScript® language. In addition, PostScript® Level 2 offers new capabilities, including forms handling, graphic patterns support, and new half-tone algorithms.



Elimination of fragmentation =
memory allocated dynamically
and automatically reclaimed

Genius-level memory.

One pool of memory is available for all resource needs. Memory is dynamically allocated and automatically reclaimed; no arbitrary memory restrictions exist. Disk space management is improved to eliminate fragmentation and improve transfer of information from the hard disk to RAM.



You can specify up to 4 paper changes from the menu — without ever leaving your chair!

The multi-user printer!

An ideal choice for multi-user printing environments. Second 250-sheet cassette feeder and tray are available (\$199); optional envelope feeder available for RealTech Laser only.



"The RealTech features not just a genuine Adobe interpreter, but also a PostScript Level 2 raster image processor (RIP), which earns it more than a few points for forward compatibility."

— PUBLISH MAGAZINE, Feb. 1992

★★★★½



\$1695

Lease price: \$47/mo.

**500%
FASTER**
than non-RISC printers

RealTech Laser

- RISC processor
- SCSI port
- 9 pages/minute
- PostScript Level 2

* Reprinted from MacUser, September 1992.
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HOW REALTECH STACKS UP

PERSONAL LASER PRINTERS

	RealTech Laser	QMS-PS 410	NewGen Turbo PS/300P	GCC BLP II	HP LaserJet IIIP
	★★★★½	★★★	★★	★★★	★★½
Price	\$1695	\$1500	\$1695	\$1799	\$1800
Pros	PostScript Level 2	PostScript Level 1	Clone	PostScript Level 1	PostScript Level 2
	Weitek RISC processor	Motorola 68020	Weitek RISC processor	Motorola 68000	Motorola 68000
	9 ppm	4 ppm	4 ppm	4 ppm	4 ppm
	300 dpi	300 dpi	300 dpi	300 dpi	300 dpi
	SCSI port	—	—	SCSI port	—
	2 mb RAM (10)	2 mb (6)	2 mb (16)	2 mb (4)	2 mb (4)
	Optional 2nd paper tray	Optional 2nd paper tray	Optional 2nd paper tray	—	Optional 2nd tray
Cons	Only available from HARDWARE THAT FITS 1-800-364-USER	No SCSI port Low-quality 50-sheet paper tray	No SCSI port Mediocre image quality	Insufficient standard RAM for some complex graphics	Slow No SCSI port

See MacUser, September 1992 for complete information about the performance of these printers.

HARDWARE THAT FITS

610 South Frazier
Conroe, Texas
77301



\$3195

NEW LOWER PRICE!!!

**Real
Tech™
Laser 400**

**The ONLY 11x17 PRINTER
WITH TRUE ADOBE POSTSCRIPT®
LEVEL 2 FOR UNDER \$3,500!**

- **High-speed printing (15 ppm, letter size)**
- **8 ppm (tabloid size)**
- **2 paper trays included!**
- **SCSI port**
- **Full page 11x17 printing!**

AGAINST THE COMPETITION

11x17 PRINTERS/HIGH-SPEED PRINTERS

	RealTech Laser 400	QMS 860 Hammerhead	QMS 2220
<i>Becoming the #1 choice for publications printing!</i>			
Price	\$3195	\$4595	\$6795
Pros	PostScript Level 2 Weitek RISC processor 15 ppm 8.5x11 8 ppm 11x17 300 or 400 dpi SCSI port 4 mb RAM (16) 2 paper trays	PostScript clone Intel 80960 processor 8 ppm 8.5x11 4 ppm 11x17 600 dpi SCSI port 12 mb RAM (32) —	PostScript Level 1 Motorola 68020 processor 22 ppm 8.5 x 11* 11 ppm 11x17 300 dpi SCSI port 4 mb RAM —
Cons	Only available through HARDWARE THAT FITS 1-800-364-USER	Not true Adobe PostScript Slow for complex graphics	Expensive Limited to 300 dpi

**"...be forewarned:
PostScript-clone
printers still have
a long way to go
before they can
rival true Adobe
PostScript printers."****

The ideal networking

printer. The RealTech Laser's (and Laser 400's) three interface ports (Appletalk® RS-422, IBM PC parallel, and RS-232-C) can be used simultaneously. They can be assigned either PostScript® or LaserJet II emulation, making it the ideal network printer. It switches automatically between interfaces and their assigned emulations, and spools files on a real-time basis. A Hewlett Packard LaserJet Series II emulation allows use with non-PostScript applications software.

Prints full-page 11x17 documents!

No more tiling to get the full image area, or taping letter-size pages together! The RealTech Laser 400 is the optimum tabloid printer.

SCSI port. The standard configuration includes a SCSI port and 2 Mb of RAM upgradable to 10 Mb (RealTech Laser) or 4 Mb of RAM upgradable to 16 (RealTech Laser 400).

Money-back guarantee.

Our famous 30-day money-back guarantee backs these products. If you're not completely satisfied, we'll refund your purchase price, minus consumables.

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1-800-364-MACS**

**FAX ORDERING:
1-409-539-4141**

**LEASING INFORMATION:
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CALL: 1-409-760-2400**



** Quote from Mac User September 1992 issue.
"Personal PostScript Printers" by Bruce Fraser.

1-800-364-USER

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**TEXAS
INSTRUMENTS**

Texas Instruments MicroLaser Plus.

\$1249

Lease price: \$34/month

300 dpi, HP LaserJet Series II emulation standard. 1.5 Mb RAM. 9 pgs./minute; 17 resident fonts; 3,000 pgs./month duty cycle. Optional accessories: 2nd paper tray, separate envelope tray.

TI MicroLaser Plus 35.....**\$1349** Lease: \$37/mo.

TI MicroLaser Turbo.....**\$1595** Lease: \$44/mo.



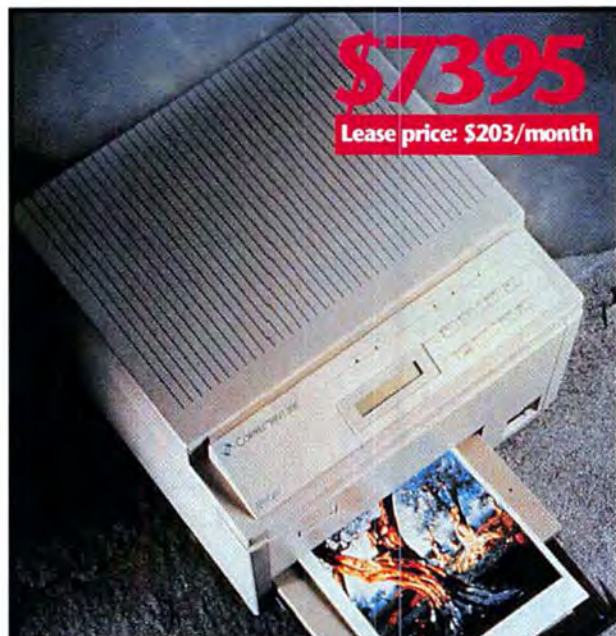
\$1469

Lease price: \$40/month

NEC Silentwriter Model 95

Micro-fine toner and NEC's patented "Sharp Edge" technology gives you sharp, black print quality.

300 dpi laser printer prints 6 ppm. 2 Mb RAM, Motorola 68000 processor, expandable to 5 Mb. Built-in envelope feeder and 250-sheet tray; feed or print consecutively or alternately. Resident language: Adobe PostScript Level 2. Automatic emulation switching. Optional second paper tray available.



\$7395

Lease price: \$203/month

RasterOps

CorrectPrint 300

**Photographic-quality proofs
for less than \$2 a page!**

The highest-quality color available in desktop color proofing technology. The RasterOps CorrectPrint 300 uses a four color (CMYK) dye-sublimation thermal printing process at 300 dots per inch. The result is a continuous-tone print that resembles photographic-quality output.

The CorrectPrint 300 prints on special sheet-fed paper or transparencies, not on rolls. For best output, special coated paper is required. It uses a RISC controller with JPEG decompression capability. The CorrectPrint 300 comes with 0Mb RAM, 12 Mb RAM is required, and it is upgradable to 36 Mb RAM.

It's Adobe PostScript® language compatible, and includes three interfaces as standard: AppleTalk, Ethernet, RS-232C, plus a SCSI port, allowing users to share the CorrectPrint among Macs, PCs, workstations, or a network. 35 resident fonts.

Seiko Instruments Personal ColorPoint PS

High-quality color! 300 dpi color thermal printer uses 16 MHz RISC processor. 6 Mb RAM standard, upgradable to 10 or 22 Mb. Adobe PostScript® language compatible. Download, process and print images simultaneously; it has multiple frame buffers. Includes three standard interfaces plus a SCSI port, allowing users to share it on a network. 39 resident fonts.

\$4495

Lease price: \$123/mo.



HARDWARE THAT FITS

TOLL-FREE TECH SUPPORT:

1-800-364-MACS

FAX: 1-409-539-4141

Call: 1-409-760-2400

Full bleed...full color...11x17!

Only **\$5995!**

Lease price: \$165/month

 **Real
Tech™**
Color 350

**Where else would you
find such a high-quality,
affordable color printer?**



The color output shown above
is an Aldus Freehand sample file.

High-speed thermal printer produces edge-to-edge comps on 11x17 or smaller paper...

300 dpi thermal transfer technology prints quality color or monochrome output. 10 Mb standard; upgradable to 18 or 34 Mb. Three interface ports (RS-232, parallel, and Appletalk®) can be used simultaneously. Includes 39 resident Bitstream fonts.

Brilliant, saturated color at 300 dpi

Adobe PostScript® compatible...perfect for graphic arts applications, publishing, business presentation graphics, and more. On-site warranty.

PANTONE® is Pantone, Inc.'s check-standard trademark for color.

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Prints on BOTH sides of thermal or plain laser paper!*

- **PANTONE® color simulations**
- **300 dpi**
- **10 Mb of RAM**
- **SCSI port**
- **Largest "live" image area of any cut-sheet printer**

*The RealTech Color 350 uses state-of-the-art thermal technology, which allows you to print on both sides of thermal paper, or on both sides of high-quality, smooth finish plain laser paper. (Use thermal paper or clay-coated paper for optimum output quality and consistency.) Call for more information.

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Toll-free ordering in the U.S. and Canada, too!
Hours: 8 am-7 pm Central Standard Time

30-DAY MONEY-BACK GUARANTEE. Before returning merchandise, we must ask that you call our Customer Service Dept. toll-free to receive a returned merchandise authorization number (RMA). This number must be included with any products you return. No C.O.D. returns, please. Thank you for your cooperation.
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Fast, friendly service

APPLIED ENGINEERING

For 13 years Applied Engineering has sold and installed more products for Apple computers than any other company except Apple. After selling over one million units...they're simply the best in the business!

1.44 Plus Super Drive (for Mac Plus, SE and MacII). No SWIM upgrade needed! ..279
TransWarp NuBus 68040-25MHz ...1679
TransWarp SE 68030-25MHz (with 25MHz68882)799



QUANTUM & FUJITSU HARD DRIVES

Internal Hard Drives

Q 105LP389
Q 240S729
Q 425S999
FJ 425 Mb999

External Hard Drives

Q 105LP479
Q 240S815
Q 425S1085
FJ 425 Mb1085

PLI (Peripheral Land)



21 Mb Floptical

\$469

Infinity Turbo 44579
Infinity Turbo 88699
21 Mb Floptical/Quad Ext.469
21 Mb Floptical/Quad Int.409
128 Mb Optical1649
1 Gig MaxOptical3539
4 Gig DAT w/Retrospect ..1729
CD ROM Drive599
240 Mb MiniArray Ext1659
480 Mb MiniArray Ext2599
1 Gig MiniArray Ext4599

NEWER TECHNOLOGY

Significant productivity enhancements.

Quadra 900/Overdrive. Increases processor speed by 25% to 33MHz119

Quadra 700/Overdrive. Increases processor speed from 25 to 30MHz259

SCSI-II DART-0 Mb System. Solid state; access time-.1ms.; transfer rates up to 12 Mb/sec. Uses 1 Mb, 4 Mb, or 16 Mb SIMMS. Built-in battery backup2949

Image Magic DSP (Digital Signal Processor) Accelerates Adobe Photoshop filters by 200 to 964%

Image Magic NuBus769
Image Magic FX/PDS699
Image Magic Quadra/PDS699

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	Digicom ScoutPlus ***	Hayes ULTRA 144 ***	Image TWINCOM 14.4/DF ***	Logicode Quicktel Xeba M14.4XV Fax ***%
List price	\$545	\$999	\$549	\$589
Street price	\$500	\$725	\$330	\$435
Pros	Well engineered.	Excellent technical support. CCL file available on BBS. Very good documentation.		Good technical support.
Cons	No flow-control cable. Poor technical support.	Expensive. Poor performance.	No flow-control cable. Poor technical support.	Poorly organized documentation.
Features				
Standards supported	Group 3 fax, MNP 5, V.42, V.42bis	Bell 103, MNP 5, V.42, V.42bis	Bell 103, Group 3 fax, V.17 fax, MNP 5, V.42, V.42bis	Bell 103, Group 3 fax, MNP 5, V.42, V.42bis
Fax capabilities	yes	no	yes	yes
Software included	Quick Link II	Smartcom EZ (PC only)	Quick Link II 2.02	FAXstf 2.0.9
Error control	V.42	V.42	V.42	V.42
Data compression	MNP 5, V.42bis	MNP 5, V.42bis	MNP 5, V.42bis	MNP 5, V.42bis
Indicator lights	10	8	8	8 (icons)
Other				
Data-pump manufacturer	Digicom	Phylon	Rockwell	Rockwell
Dimensions (L x W x H)	9.0 x 6.6 x 1.8 in.	9.6 x 5.6 x 1.5 in.	9.2 x 5.6 x 1.8 in.	7.2 x 6.0 x 2.0 in.
Warranty	5 years	2 years	2 years	5 years
Company	Digicom Systems, Inc. 188 Topaz St. Milpitas, CA 95035 800-833-8900 408-262-1277 408-262-1390 (fax)	Hayes Microcomputer Products, Inc. 5835 Peachtree Corners E. Norcross, GA 30092 404-840-9200	Image Communications 6 Caesar Pl. Moonachie, NJ 07074 800-666-2496 201-935-8880 201-935-6548 (fax)	Logicode Technology, Inc. 1817 De Havilland Dr. Newbury Park, CA 91320 805-499-4443 805-499-8588 (fax)

Directory, continued

PSI Integration
851 E. Hamilton Avenue
Suite 200
Campbell, CA 95008
800-622-1722
408-559-8544
408-559-8548 (fax)
COMstation Five, \$799
PowerModem III, \$799

QuickComm Co.
2290 Ringwood Avenue
Suite K
San Jose, CA 95131
800-551-6166
408-956-9145
408-956-1345 (fax)
SpiritII V.32bis, \$342

Racal-Datacom
1601 N. Harrison Parkway
Sunrise, FL 33323
800-722-2555
305-846-1601
305-846-5510 (fax)
ALM 3223, \$1,145
ALM 3239, \$1,795
RMD 3222, \$1,145

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Table 1: Features of V.32bis Modems, continued

				
	Practical Peripherals PM14400FXSA ★★★★	PSI Integration COMstation Five ★★★★½	Racal-Datcom RMD 3222 ★★	Supra FAXModem V.32bis ★★★★
List price	\$579	\$799	\$1,145	\$399
Street price	\$420	\$540	\$925	\$399
Pros	Inexpensive. Excellent display. Lifetime warranty. Good performance on impaired lines.	Superior documentation. Well engineered. CCL file for AppleTalk Remote Access included.	Good LCD display.	Inexpensive. Small. CCL file available on BBS. Excellent display. Good performance on impaired lines.
Cons			Expensive. Poor technical support. Poor performance. Documentation not for beginners.	
Features				
Standards supported	Bell 103, Group 3 fax, MNP 5, V.42, V.42bis	Bell 103, Group 3 fax, V.17 fax, MNP 5, V.42, V.42bis	Bell 103, MNP 5, V.42, V.42bis	Bell 103, Group 3 fax, V.17 fax, MNP 5, V.42, V.42bis
Fax capabilities	yes	yes	no	yes
Software included	Quick Link II 1.0.1	COMstation FAX 2.2	none	FAXstf 2.2, MicroPhone
Error control	V.42	V.42	V.42	V.42
Data compression	MNP 5, V.42bis	MNP 5, V.42bis	MNP 5, V.42bis	MNP 5, V.42bis
Indicator lights	10 + 14-character LCD	10	12	4 + 3-character LED
Other				
Data-pump manufacturer	AT&T	Rockwell	TI/proprietary	Rockwell
Dimensions (L x W x H)	10.4 x 3.1 x 5.2 in.	8.5 x 2.1 x 5.5 in.	10.0 x 9.6 x 2.7 in.	6.8 x 4.7 x 1.3 in.
Warranty	lifetime	5 years*	2 years	5 years
Company	Practical Peripherals 375 Conejo Ridge Ave. Thousand Oaks, CA 91361 800-442-4774 805-497-4774 805-374-7200 (fax)	PSI Integration 851 E. Hamilton Ave. Ste. 200 Campbell, CA 95008 800-622-1722 408-559-8544 408-559-8548 (fax)	Racal-Datcom 1601 N. Harrison Pkwy. Sunrise, FL 33323 800-722-2555 305-846-1601 305-846-5510 (fax)	Supra Corp. 7101 Supra Drive S.W. Albany, OR 97321 800-944-8772 503-967-2400 800-967-2400 (fax)

*You must send in the registration card to receive the full warranty.

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800-967-2400 (fax)
FAXModem V.32bis, \$399

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CIRCLE 87 ON READER SERVICE CARD.

Table 1: Features of V.32bis Modems, continued

				
	Tele globe DA3214 \$\$\$	UDS Motorola V.3229 \$\$\$\$	Zoom FaxModem V.32bis \$\$\$	ZyXEL USA U-1496E \$\$\$
List price	\$1,095	\$1,145	\$449	\$469
Street price	\$980	\$890	\$300	\$375
Pros	Front-panel self-test. Well engineered.	Exceptional performance.	Seven-year warranty.	
Cons	Expensive. Poor technical support. One-year warranty.	Expensive. No flow-control cable. Poor technical support.	Poor technical support.	Poor documentation.
Features				
Standards supported	MNP 5, V.42, V.42bis	Bell 103, MNP 5, V.42, V.42bis	Bell 103, Group 3 fax, V.17 fax, MNP 5, V.42, V.42bis	Bell 103, Group 3 fax, V.17 fax, MNP 5, V.42, V.42bis
Fax capabilities	no	no	yes	yes
Software included	none	none	FAXstf 2.2, Quick Link II 1.2	FAXstf 2.1.2
Error control	V.42	V.42	V.42	V.42
Data compression	V.42bis	MNP 5, V.42bis	MNP 5, V.42bis	MNP 5, V.42bis
Indicator lights	11 + 2-line LCD	6	14	13
Other				
Data-pump manufacturer	TI	UDS Motorola	Rockwell	ZyXEL USA
Dimensions (L x W x H)	10.8 x 7.6 x 2.7 in.	10.3 x 7.0 x 2.3 in.	8.8 x 6.1 x 1.8 in.	10.2 x 6.7 x 1.8 in.
Warranty	1 year	2 years	7 years	5 years
Company	Tele globe, Inc. 40 High St. North Andover, MA 01810 800-926-3225 508-681-0600 508-681-0660 (fax)	UDS Motorola 5000 Bradford Dr. Huntsville, AL 35805 800-451-2369 205-430-8000 205-830-5657 (fax)	Zoom Telephonics 207 South St. Boston, MA 02111 800-666-6191 617-423-1072 617-423-9231 (fax)	ZyXEL USA 4920 E. La Palma Ave. Anaheim, CA 92807 800-255-4101 714-693-0808 714-693-8811 (fax)

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Skokie, IL 60076
800-342-5877
708-982-5001
708-982-5235 (fax)
Sportster 14.4 FAX, \$549
Sportster 14.4 Mac & FAX,
\$599

Western DataCom Co., Inc.
959 Bassett Road
Westlake, OH 44145
800-262-3311
216-835-1510
216-835-9146 (fax)
656 Quadra Pump, \$2,495

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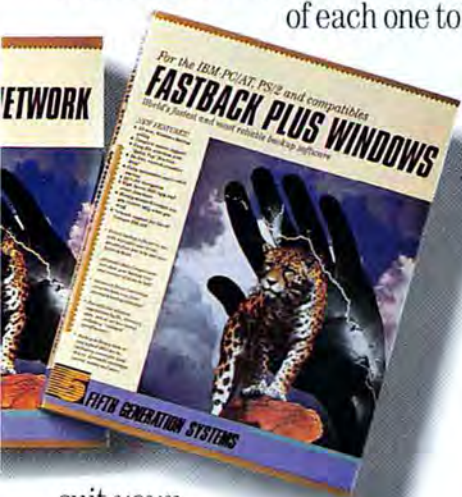
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Now any member of the Mac II family can run as fast as a Quadra 950.

What do accountants, graphic designers, and service-bureau managers have in common? Although they perform different jobs, they could all use more time. But because you can't squeeze more hours into a day, the next-best solution is to squeeze more hours into your Mac — when you increase your Mac's speed, you increase its productivity.

If you own a Mac II, IIfx, IIfx, IIfx, IIfx, or IIfx, Apple has left you without an upgrade path to Quadra 950 performance. In our June '92 report "Blasting Off: CPU Accelerators," we looked at a dozen ways to accelerate Macs that were based on the 40- or 50-megahertz Motorola 68030 or the 25-megahertz Motorola 68040. Each method could speed a Macintosh to then-unheard-of levels, but the definition of *fast* keeps changing, and with the introduction of Motorola's 33-megahertz 68040 chip and the new Quadra 950, fast just got faster. This month we look at

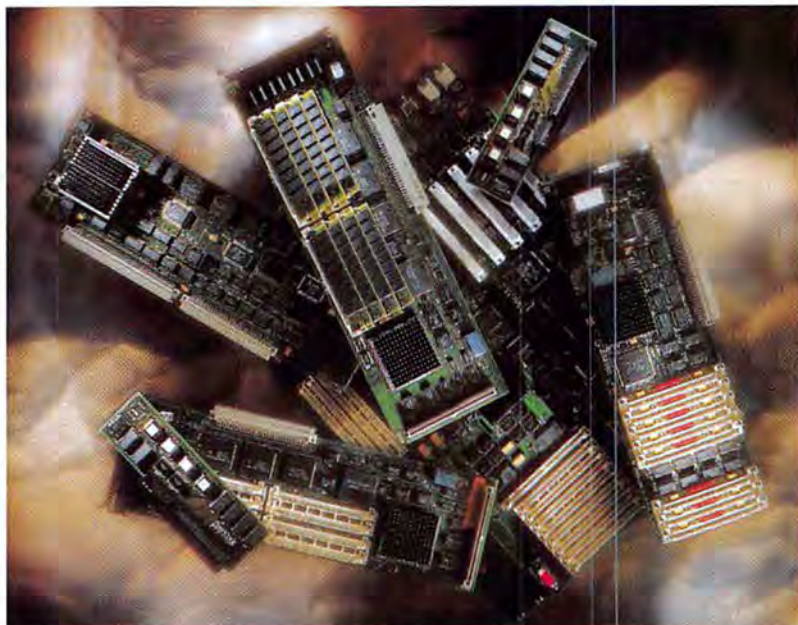


Figure 1: Six cards give the Mac II family Quadra 950 speed: the Apple Quadra 950 Upgrade (background) and (clockwise from top) DayStar FastCache Quadra 700/900, Radius Rocket 33, Applied Engineering TransWarp 040, DayStar FastCache Quadra 950, Fusion Data TokaMac II FX 33, and Impulse Performance/040.

five accelerators based on Motorola's new chip that can give your old Mac II new life and two new cache cards that can boost your Quadra into the stratosphere.

We tested a motherboard upgrade, the Apple Quadra 950 Upgrade, for the Quadra 900. This upgrade turns a Quadra 900 into a 950, and Apple even supplies two stickers you can put on the Quadra case to prove it.

We tested three of the accelerators — the Applied Engineering TransWarp 040, the Impulse Performance/040, and the Radius Rocket 33 — in a Mac IIfx. These accelerators are designed for the full Mac II family, although Radius does not recommend using the Rocket 33 in a IIfx, because of the IIfx's limited power supply, and the Radius software we tested didn't support the IIfx.

The Fusion Data TokaMac II FX 33 is designed solely for the IIfx and includes more than just a fast processor: It also provides a 128K CPU cache and a high-speed buffered NuBus controller for enhanced performance. The TokaMac II FX 33 uses both the PDS (processor-direct slot) and the NuBus slot of the IIfx.

And finally, we tested two DayStar FastCache Quadra cards, one for the Quadra 700 and 900 and one that works in the Quadra 700, 900, and 950 — inexpensive 128K cache cards, not processor-based accelerators.

Not for Everyone

Power is seductive, but before you rush out to buy a 68040-based accelerator, remember that some software is still incompatible with this high-speed microprocessor. To get around this,



In June '92, we told you how to speed up your Mac. Today's Macs can be even faster.

each accelerator (except the Apple Quadra 950 Upgrade) includes software that automatically switches cache modes to allow you to run older non-68040-compatible applications (a free control-panel utility for switching 68040-compatibility modes, CacheOut, is available in Library 3 of the ZiffNet/Mac Download & Support Forum). The various modes are *copy-back* (fastest), *write-through* (slower but more compatible), and *off* (most compatible).

Although the Fusion Data TokaMac II FX 33 doesn't have a write-through mode, it can disable the 68040 processor without rebooting. The Applied Engineering TransWarp 040, the Impulse Performance/040, and the Radius Rocket 33 require that you reboot to completely disable them.

Installing most of the accelerators is straightforward—simply place it in the appropriate

slot and install the software. Each NuBus accelerator comes with SIMM slots that accept as much as 128 megabytes of RAM; 4 megabytes of RAM is left on the motherboard for rebooting the accelerator and — if your Mac is so equipped — for running the on-board video. Only the

Fusion Data TokaMac II FX 33 requires a manufacturer's installation — Fusion Data must replace a *PAL* (programmable addressable logic) chip on the IIx motherboard — safe, simple, reversible surgery.

Radius provides the best documentation. The manuals from

Figure 2: Faster Than the Fastest

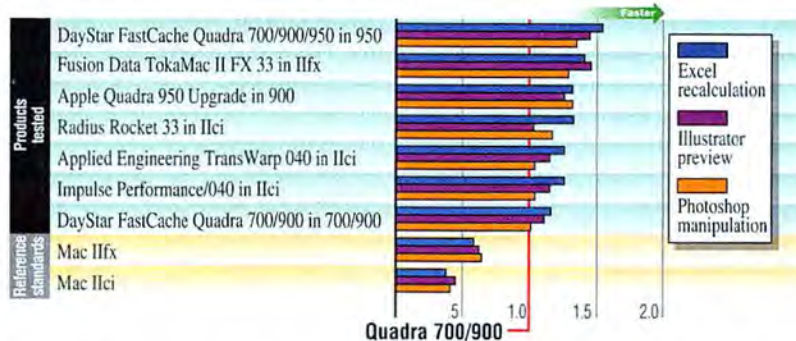


Figure 2: No matter how fast your Mac, you can always use more speed. We compared the speed of five new accelerators and two Quadra cache cards installed in appropriate Macs with that of the Quadra 700 and 900 (which have identical performance) by recalculating a complex spreadsheet in Excel 3.0a, previewing an Illustrator 3.0.1 image, and manipulating a file in Photoshop 2.0.1.

Table 1: Pros and Cons

	Apple Quadra 950 Upgrade \$\$\$%	Applied Engineering TransWarp 040 \$\$\$%	DayStar FastCache Quadra 700/900 \$\$\$	DayStar FastCache Quadra 700/900/950 \$\$\$
List price	\$1,499	\$3,599	\$299	\$449
Street price	\$1,400	\$2,450	\$270	\$410
Pros	Faster Ethernet and video than a Quadra 900. 16-bit-color support on two-page color displays. FCC Class B-certified.	Automatic cache-switching software.	Inexpensive performance boost.	Inexpensive performance boost.
Cons	No automatic cache-switching provided. Faster video circuitry requires faster VRAM SIMMs.	Mac II installation requires 68851 PMMU. Incompatible with parity RAM. Once launched, always enabled.	Incomplete documentation.	Incomplete documentation.
Company	Apple Computer, Inc. 20525 Mariani Ave. Cupertino, CA 95014 800-776-2333 408-996-1010 408-996-0275 (fax)	Applied Engineering 3210 Beltline Dallas, TX 75234 800-554-6227 214-241-0055 214-484-1365 (fax)	DayStar Digital 5556 Atlanta Hwy. Flowery Branch, GA 30542 800-962-2077 404-967-2077 404-967-3018 (fax)	DayStar Digital 5556 Atlanta Hwy. Flowery Branch, GA 30542 800-962-2077 404-967-2077 404-967-3018 (fax)

Applied Engineering and Impulse Technology don't adequately discuss RAM configuration and installation — novice buyers, beware. The manuals from DayStar and Fusion Data were not current with the company's new products; representatives from each company assured us that new manuals are on the way. When installing any NuBus accelerator in a IIfx, you should know that IIfx SIMMs are different from the standard Mac II-style SIMMs.

The Radius Rocket 33 is the only accelerator we tested that supports parity RAM, a requirement for some government-contract applications. The Radius Rocket 33 is also the only accelerator that has FCC Class B certification for residential use; the Apple Quadra 950 Upgrade is also FCC Class B-compliant.

To test how the raw power of these accelerators helps speed day-to-day chores, we ran a suite of application-based tests: an Excel 3.0a spreadsheet recalculation,

an Illustrator 3.0.1 preview, and a Photoshop 2.0.1 manipulation. All the tests were designed to run within the 20 megabytes of RAM installed with each product to eliminate disk performance as a factor in testing.

The Fusion Data TokaMac II FX 33 increased the performance of a stock IIfx by nearly 125 percent and beat the Quadra 950 in overall performance by almost 10 percent. The Applied Engineering TransWarp 040, the Impulse Performance/040, and the Radius Rocket 33 each accelerated a IIfx by more than 180 percent. The Apple Quadra 950 Upgrade accelerated a Quadra 900 by about 30 percent, and the two inexpensive DayStar FastCache Quadra cards accelerated the Quadra 900 and the Quadra 950 by more than 10 percent.

The Bottom Line

If your yearly financial model takes a bit too long to calculate on your IIfx; if your aging Mac

II, IIfx, IIfx, or IIfx can't preview your Illustrator files fast enough; or if your Quadra 900 — which seemed so fast mere months ago — needs help when rendering a complex image, you may find that a 33-megahertz 68040-based accelerator or a Quadra cache card provides the oomph you're looking for.

If your NuBus Mac has a healthy power supply, we recommend the Radius Rocket 33: It's fast, has the best manuals, supports parity RAM for government use, and is FCC Class B-compliant. If you own a IIfx, buy the Fusion Data TokaMac II FX 33: It outperforms a Quadra 950. And if you already own a Quadra, you're cheating yourself if you don't buy a DayStar FastCache Quadra: Equip your Quadra 950 (or a Quadra 900 with an Apple 950 Logic Board Upgrade) with a FastCache Quadra 950, and you'll have the fastest Mac possible. For now.

— Jeff Pittelkau

Table 1: Pros and Cons, continued

	Fusion Data TokaMac II FX 33 ††††%	Impulse Performance/040 ††††%	Radius Rocket 33 ††††
List price	\$3,995	\$2,399	\$2,499
Street price	\$2,950	\$1,995	\$2,067
Pros	Makes IIfx faster than a Quadra 950. Automatic 68040- and cache-switching software.	Automatic cache-switching software.	Best manuals and packaging. Automatic cache-switching software favors compatibility over performance. Supports parity RAM. FCC Class B-certified.
Cons	Requires modification to IIfx motherboard prior to installation. Incomplete manual.	Mac II installation requires 68851 PMMU. Incompatible with parity RAM. Once launched, always enabled.	Once launched, always enabled. Version tested incompatible with IIfx.
Company	Fusion Data Systems 8920 Business Park Dr. Ste. 350 Austin, TX 78759 512-338-5326 512-338-1276 (fax)	Impulse Technology 210 Dahlonega St. Ste. 204 Cumming, GA 30130 404-889-8294 404-781-8738 (fax)	Radius 1710 Fortune Dr. San Jose, CA 95131 800-227-2795 408-434-1010 408-434-0770 (fax)

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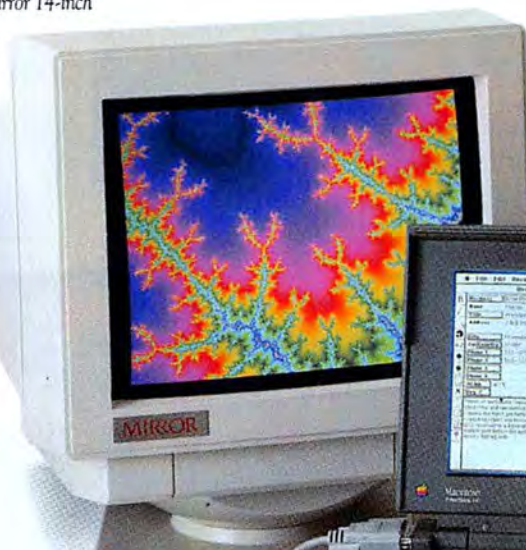
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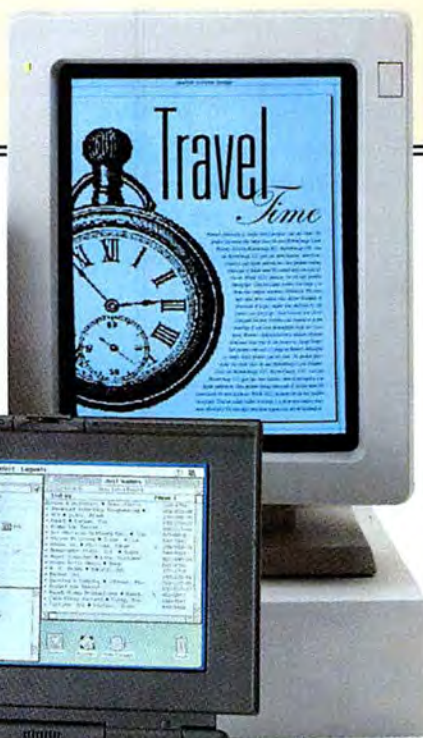


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1 GB	N/A	\$1,999
50 MB (Q) Portable Drive	\$299	
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240 MB (Q) Portable Drive	\$739	
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600 MB Optical Drive	\$2,299	
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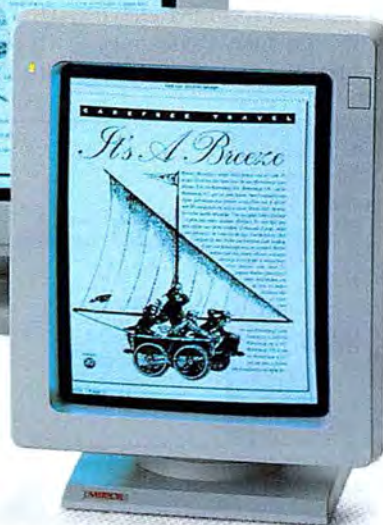
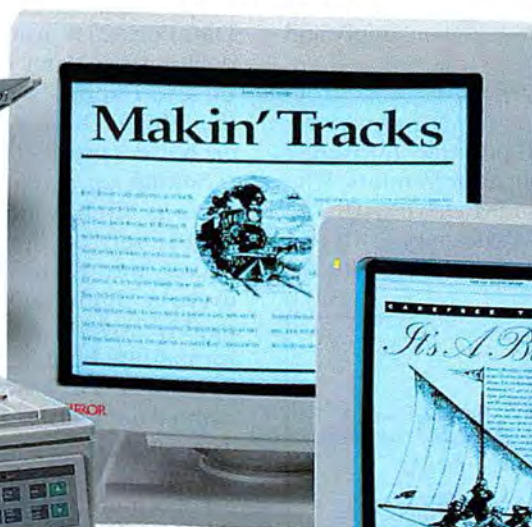
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Removable Hard Drives

Four portable storage systems offer speed and convenience, but only one delivers.

You've been using removable-cartridge drives for years, attracted by their portability. Convenience has its costs, though — sluggish speed, questionable data integrity, and limited per-disk capacity. But there is a storage product that offers the speed and peace of mind of a fixed hard drive as well as the convenience of a cartridge drive: a removable hard drive. Whereas a cartridge drive swaps only a data-carrying disk, a removable hard drive can swap a cartridge — or *module* — that contains a complete hard-drive mechanism inside a safely sealed unit. The entire unit is designed to be inserted into a *docking bay* that contains a power supply and a SCSI port.

Module capacities range from 50 megabytes to 1.3 gigabytes. We tested popular midrange models from four vendors. The La Cie Express Drive 240, The Mega Drive Mercury 240, the Satura Academy 240Z/ro and the ETC DataPort 210



Figure 1: Clockwise from the top: The ETC DataPort 210, Mega Drive Mercury 240, La Cie Express Drive 240, and Satura Academy 240Z/ro offer greater reliability and speed than do removable-cartridge drives.

contain Quantum's new 240-megabyte hard-disk assembly, and the ETC DataPort 210 contains a Quantum 210-megabyte mechanism. The Satura Academy 240Z/ro and the ETC DataPort 210 use compatible docking bays and modules; the La Cie Express Drive 240 and the Mega Drive Mercury 240 each use a proprietary design.

Setting up a removable hard drive is slightly more complex than simply cabling an external drive, but fortunately, each drive's documentation thoroughly covers installation and formatting. Finding information in the Mega Drive Mercury 240's manual is a little difficult, because it lacks an index.

Many features that are taken for granted with removable-cartridge drives are missing from some of these systems. For example, when we rebooted each unit with the docking station empty and then inserted the module, only the La Cie Express

Drive 240 and the Mega Drive Mercury 240 automatically mounted (and remounted after ejection). The Mega Drive Mercury 240 requires you to use the company's Steadfast driver on one of your drives. The ETC DataPort 210 and the Satura Academy 240Z/ro each required either formatting software or SCSI Probe (a shareware utility, available from ZiffNet/Mac's Download & Support Forum) to mount — a real inconvenience. The La Cie Express Drive 240 has an ejection motor that's similar to ones used in VCRs, which adds convenience and eliminates the possibility of accidental removal, but more moving parts in a unit means that more things can go wrong.

The Mega Drive Mercury 240, which lacks an ejection motor, can be operated without the module's being locked into the docking station — a disaster waiting to happen. Although you can lock the module manually,



In April '92's report on 200-megabyte hard drives, none had the convenience of cartridge drives.

it can be accidentally removed while data is being written to the drive, potentially corrupting the file or even the entire disk.

To ascertain if you pay in performance for the convenience of a removable hard drive, we ran each assembly through the same battery of tests we used in our most recent report on comparable external hard drives (see "Sizable Storage: 200-Megabyte Hard Drives," April '92, page 108) — a 4th Dimension-database sort; a DiskTop copy; a Finder copy; and a Photoshop open, rotate, and save. We calculated the total time each drive took to complete the tests and compared these results with those of the Dynatek HDA 234, one of the fastest drives in our April report.

The results proved the Quantum 240-based drives to be faster than our reference drive, the Dynatek HDA 234, which uses a Hewlett-Packard C2233 mechanism. Not surprisingly, the ETC DataPort 210, with its older Quantum mechanism, finished last.

After we had tested speed, we

Figure 2: Fast and Convenient



Figure 2: The La Cie Express Drive 240, the Mega Drive Mercury 240, and the Saturae Academy 240Z/ro use the new Quantum 240, the fastest mechanism with this capacity we've ever tested. Our tests showed that the inexpensive ETC DataPort 210, with its older Quantum 210 LS mechanism, was much slower than the other units, although only slightly slower than the Dynatek HDA 234, one of the fastest drives in our April '92 report on 200-megabyte hard drives. (Average total test times are shown in minutes and seconds at the beginning of each bar.)

examined the design and construction of each drive. The ETC and Saturae cases are not much more than modified external-hard-drive cases; the La Cie and Mega Drive units are specifically designed to be removable hard drives. Between the La Cie and Mega Drive drives, there were only minor differences in construction features — the La Cie unit scored extra points for its locking ejection system.

The Bottom Line

The La Cie Express Drive 240 is well designed and well built, comes with a two-year warranty, and is easy to use. If you've been waiting for a removable storage product that's not only fast and convenient but will also let you sleep at night, secure in the knowledge that your data is safe, we recommend the La Cie Express Drive 240.

— Mark Frost

Table 1: Pros and Cons

	ETC DataPort 210 \$\$\$½	La Cie Express Drive 240 \$\$\$\$	Mega Drive Mercury 240 \$\$\$	Saturae Academy 240Z/ro \$\$\$½
List price	\$1,179	\$1,348	\$1,999	\$948
Street price	\$990	\$1,348	\$1,600	\$948
Pros	Inexpensive for a removable drive.	Easiest to use. Most intuitive interface.	Rugged hardware.	Inexpensive for a removable drive.
Cons	Does not auto-mount.		Clumsy interface. You can remove drive during operation.	Does not auto-mount. No FCC Class B certification.
Company	ETC Peripherals 5426 Beaumont Center Blvd. Ste. 300 Tampa, FL 33634 813-884-2863 813-888-9535 (fax)	La Cie Ltd. 8700 S.W. Creekside Pl. Beaverton, OR 97005 800-288-9919 503-520-9000 503-520-9100 (fax)	Mega Drive Systems 489 S. Robertson Blvd. Beverly Hills, CA 90211 310-247-0006 310-247-8118 (fax)	Saturae Corp. 148 Richdale Ave. Cambridge, MA 02140 617-661-8166 617-661-8662 (fax)



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CIRCLE 133 ON READER SERVICE CARD.

I know you thought Macs already did windows, but now they can do *Windows* — version 3.1, to be precise. Insignia Solutions (415-694-7600), whose stock-in-trade is making Macs behave like PCs, will soon bring the blue GUI to the Mac desktop. SoftPC with Windows will list for \$649 and will be available by the end of this year. A “high-performance Mac” (Iici or higher) with at least 8 megs of RAM is recommended.

By Henry Bortman


Mail call: Frustrated that when you dial in to QuickMail via AppleTalk Remote Access (ARA), you have to manually make the ARA connection first? Not if you have ARA-Link QM, from Netstrategy (416-345-8985). ARA-Link QM (\$129.95 for a five-pack) lets you make a one-click QuickMail-over-ARA connection, using the standard QuickMail interface. ♦ Meanwhile, version 3.1 of Microsoft Mail for AppleTalk Networks offers several new remote-access features of its own: Servers can now call each other via modem to exchange messages, and users can access their mail remotely and compose and store messages locally. Upgrades from 3.0 to 3.1 cost \$99 per server and are free for client Macs. ♦ By the way, CE Software, publisher of QuickMail, has bought InBox, Sitka’s competing E-mail package, **solely to kill it.** Call CE at 515-224-1995 for upgrade details.



Talkin’ routers: I guess DOS machines are good for something. Talking Router, from Talking Networks (510-549-8368), is a \$700 software router that runs on 80386 and 80486 PCs and provides AppleTalk and basic IP routing and tunneling for as many as four LocalTalk or Ethernet connections. The companion TransInternet Mapper, bundled with the router software, lets users **person-**



alize their views of network services so that, even on large internets, they see only those printers and servers they’re interested in, not endless lists of devices they couldn’t care less about. ♦ XBR Communications offers a variety of hardware and software products for those who need WAN (wide-area network) routing. XBR Gate/25 is an X.25 NuBus card (with bundled Comm Toolbox software) capable of data rates as high as 384 Kbps. TheLink, an eight-channel WAN router, supports modem, X.25, ISDN, and other dial-up WAN connections. And Router for Macintosh supports synchronous point-to-point and X.25 links. Each software product works in conjunction with Apple’s AppleTalk Internet Router, which is bundled with TheLink. Call XBR (514-489-1001) for pricing. ♦ Dayna’s latest offering is the PathFinder, a no-frills LocalTalk-to-Ethernet router that retails for \$899. According to Dayna (801-531-0600), it’s easy to install and configure. That would be a first in the router market.

Alarming news: NetWORKS is a network-monitoring and alarm utility from Caravelle Networks (613-596-2802) that can notify network managers of **abnormal network conditions.** Version 2.0 (\$995) adds the ability to send alarm messages via QuickMail or Microsoft Mail or to a pager. It also provides expanded information about the condition of network devices — for example, warnings that a file server is low on disk space. 



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Thick + 10BASE-T + 16K + FPU	\$449
3-way + 64K + FPU socket	\$379
3-way + 64K + FPU	\$529
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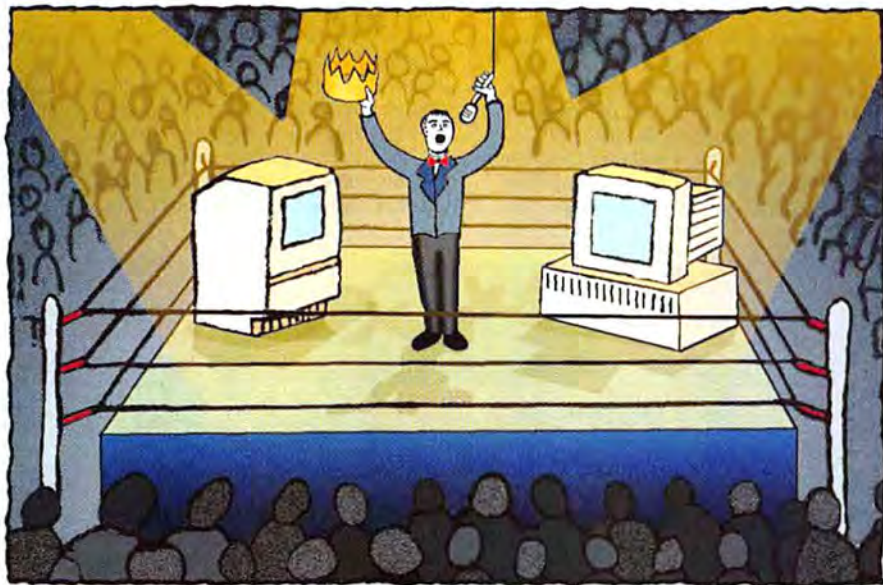
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CIRCLE 177 ON READER SERVICE CARD.

Battling for the UNIX Crown

Version 2.0 of trim young contender MachTen battles Apple's beefed-up A/UX 3.0 for the title of Best UNIX on the Mac.

By Ian Bacon



Apple UNIX has been around for almost ten years, if you count the version on the ill-fated Lisa, but it had no competition until 1991. At that point, A/UX, Apple's Mac version of the multiuser, multitasking operating system, had reached version 2.0 — a great improvement over the bare-bones A/UX 1.0. It had all the features UNIX users expect and it allowed use of the Finder, but it also had some performance and stability problems and wasn't System 7-compatible. In addition, A/UX 2.0 was a resource hog: It easily filled an 80-megabyte drive and required a Mac with a 68030 processor or a 68020 with a PMMU (paged-memory-management unit).

Enter MachTen 1.0, from Tenon Inter-systems. Where A/UX was fat, MachTen was lean, running on any Mac and filling less than half of a 40-megabyte drive, after installation. Where A/UX was based on original AT&T code and technology, some of which is now 20 years old, MachTen used Carnegie-Mellon's streamlined UNIX kernel called *Mach*, which brought object-based, multi-threaded processing to the game. MachTen had some problems similar to those of A/UX 2.0, however, and it lacked System 7 support, a development system, and a means of running X Window System (abbreviated as X Window or X) software.

In April 1992, Apple released A/UX 3.0, which was still based on AT&T UNIX (System V, Release 2) but with 4.3BSD (Berkeley

Software Distribution) enhancements. A/UX 3.0 promised integration with System 7, faster performance, and a cure to all the old problems. In May, MachTen 2.0 hit the streets. It was also integrated with System 7 but based on the 4.3BSD Reno version of UNIX with a Mach kernel. How does the upstart contender stack up against the old champ? Over a period of several months, we observed the two in action. This is their story.

Getting Started

Whatever else Apple did to A/UX, version 3.0 is still a resource hog. It no longer fits on an 80-megabyte drive (120 megabytes is the minimum size, and Apple recommends 160 megabytes), and it requires 8 megabytes of RAM plus a 68030 processor. In contrast, MachTen 2.0 needs only a 40-megabyte hard drive and 4 megabytes of RAM — and you can still install it on any Macintosh, including a PowerBook. In practice, however, you need a lot more than 4 megabytes of memory to do anything useful with MachTen, and it is very slow on low-end machines.

Buying and Installing A/UX. A/UX 3.0 comes on a single CD-ROM (priced at \$709, or \$245 to upgrade from version 2.0), which includes the standard UNIX features: basic UNIX, text processing, networking, the X Window, and a complete software-development environment. The standard package includes system-administration documentation, most of which is detailed and complete. Two

Who's Running the Operating System?

A/UX and MachTen are different in many ways. They employ different versions of UNIX, but their most significant difference is in how they interact with the Mac operating system.

When booted, each product puts UNIX code into memory, but they put the code in different places. A/UX inserts itself at the lowest level, between the hardware and the Mac OS Toolbox (see Figure A), whereas MachTen

leaves the connections between the Toolbox and the hardware in place and runs between the Mac OS and any applications or UNIX utilities (see Figure B). In other words, A/UX makes UNIX the core operating system and runs the Mac OS as a UNIX application, whereas MachTen keeps the Mac OS in place and extends it to run UNIX applications. (The Mac OS for MachTen 2.0 can be either System 7 or System 6 with

MultiFinder; A/UX 3.0 works with System 7 only.)

Because UNIX is its core operating system, A/UX is faster than MachTen at performing operations that use UNIX shell commands. Similarly, because MachTen keeps the Mac OS intact, it's faster than A/UX at performing operations that use the Mac Finder and slower than A/UX at shell operations; to find out how *much* slower, see Figure 1.

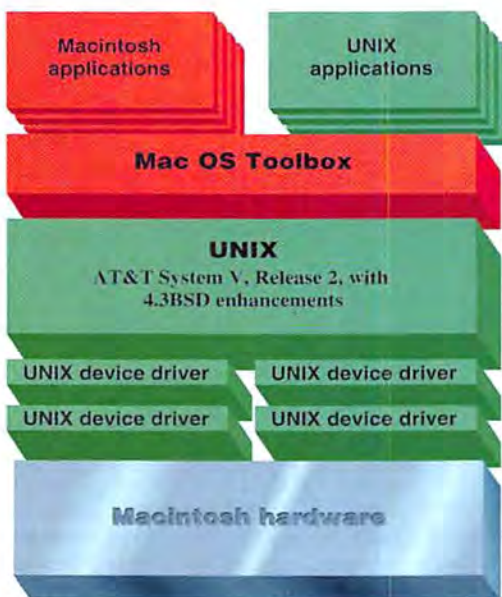


Figure A: Architecture of A/UX

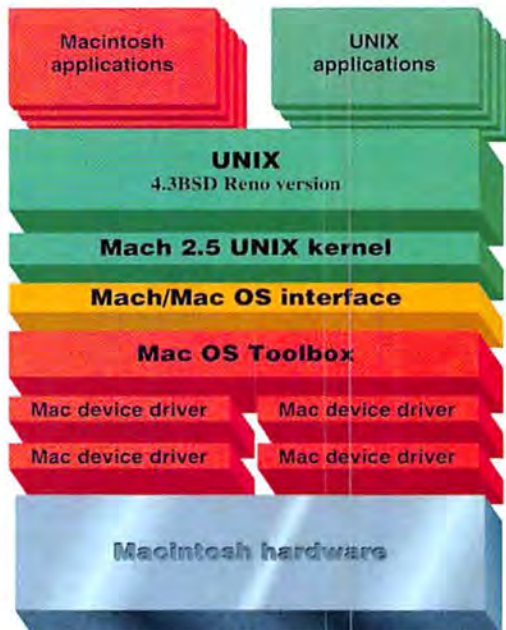


Figure B: Architecture of MachTen

additional sets of standard UNIX manuals covering programming and system administration are available for \$355 each.

Unlike version 2.0, A/UX 3.0 is easy to install. It uses the Installer and provides an Easy Install option, which does almost everything for you automatically. It's up to you to reformat and repartition your hard disk, even if it already contains an earlier version of A/UX. In addition, the Easy Install option installs the software on a single hard disk only: To split the software across two or more disks, you have to use the Choose Packages option to select and mount multiple disks. Once the installation is complete, you need to turn on the networking capabilities by using the newconfig utility.

Buying and Installing MachTen. MachTen comes as a series of separate packages, available only on floppy disk.

The basic package includes the Mach kernel, the file system, networking and other utilities, serial-communications tools, and text processing. It costs \$595 (with free upgrades for registered users). X Window support comes in the X Client package (the X libraries), for \$75, and the X Server package, for \$200. The software-development system costs an additional \$395 and includes documentation. The basic MachTen package doesn't include standard UNIX documentation, which costs \$175 extra. The documentation included with the package (mostly reprints of UNIX papers from AT&T) is poor, with specific system-administration tasks receiving only cursory coverage.

With MachTen, repartitioning is not necessary, because it uses the Mac's file system directly. Installation is a two-step process: First, you run the Installer to

load compressed archives onto a hard disk, and then you launch MachTen and answer some questions about the network configuration, after which MachTen expands your archives. If you're upgrading from a previous version, be aware that old MachTen directories will be deleted and overwritten. Also, launching MachTen is difficult if you have QuickMail — our Mac IIcx crashed repeatedly until we removed the QuickMail extension. After the installation was complete, both QuickMail and MachTen ran correctly.

Getting Down to Work

UNIX provides a character-based, command-driven user interface called a *shell*. Running a session requires you to perform several steps before you can do any useful work:

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Figure 1: Fast Finder or Speedy Shell?

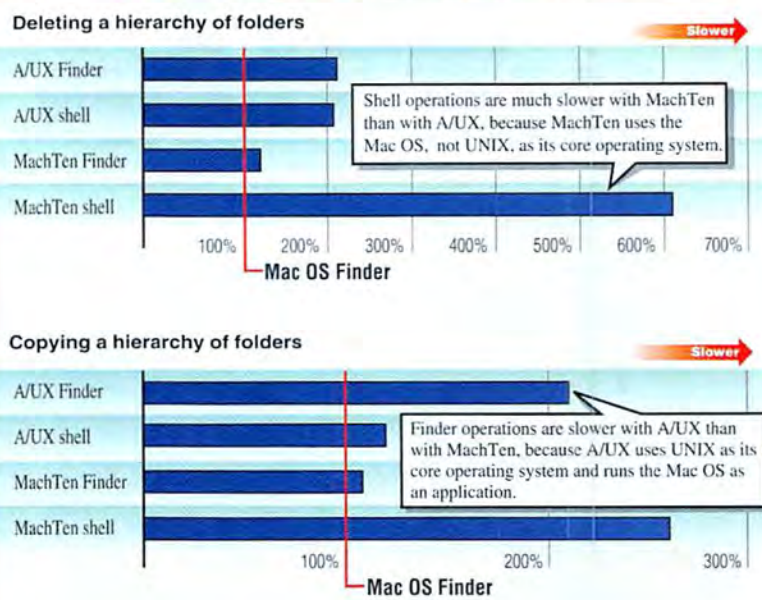


Figure 1: Those who need fast Finder performance (for example, when dragging icons to copy them) will find that MachTen takes only a little longer than the native Mac OS, whereas A/UX takes about twice as long. Shell operations (entering UNIX commands to do such things as copying files), however, take much longer with MachTen than with A/UX. Using shell commands, MachTen takes about three times as long as A/UX (and six times as long as the native Mac OS) to delete the folders (top) and more than twice as long as A/UX to copy a hierarchy of folders (bottom).

UNIX is a multiuser system, password-protected entry is important for ensuring the security of your files. Both MachTen and A/UX include encryption utilities that scramble your password as you enter it so onlookers can't read it — although with MachTen, we had to wonder why Tenon bothered.

To start using UNIX, you first need to enter your account name and password. With A/UX, the log-in screen is modal and can't be cleared away until you pass the password test; if you fail, you are locked out of the system. With MachTen, the log-in screen is a standard Macintosh window that can be resized, moved, or hidden — making it easy for anyone to get at the unprotected password file and edit it to gain superuser powers. The only case in which MachTen affords any protection is when someone attempts to log in over a network and can't get at the desktop. Even then, unauthorized access would be simple to obtain with Timbuku or a similar package.

Collecting Shells. Three shells are commonly used as command-line interfaces to UNIX: the Bourne shell, which system administrators use; the C shell, favored by most users; and the Korn shell, preferred by programmers. A/UX provides robust implementations of the latest versions of all three. MachTen supplies only the Bourne and C shells, and its implementation of the Bourne shell is rather ancient — it does not, for example, have in-line procedures, a capability for step-by-step program execution that system administrators find very useful.

Like version 2.0, A/UX 3.0 supplements its shells with the Commando utility. Commandos provide a Finder interface to many UNIX utilities, letting users specify command options with buttons and pop-up menus. Each Commando comes with detailed instructions to guide users through the necessary steps. Even experienced UNIX users will probably find this capability quite helpful from time to time.

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What's Taking So Long? Most of the work you do under UNIX uses the horde of utilities and tools that come standard with all versions of the operating system. The same tools are available with both A/UX and MachTen, and their functionality is essentially identical in each case. Their performance is significantly different, however. Utilities that require disk access (such as moving, copying, deleting, and reading from or writing to files) take much less time under A/UX (see Figure 1). Text search, comparison, grammar-checking, and spell-checking tools

Utilities that require disk access take much less time under A/UX. Using the Mac Finder under A/UX, however, takes longer than using it under MachTen.

are typically two to three times as fast under A/UX.

Of course, you'd expect such UNIX utilities to take less time under A/UX, given how its architecture differs from MachTen's (see the "Who's Running the Operating System?" sidebar). A/UX makes UNIX the core operating system of the Mac, with the Mac OS running as an application under UNIX. MachTen, on the other hand, keeps the Mac OS as the core, so naturally its UNIX utilities take longer.

Using the Mac Finder under A/UX, however, takes longer than using it under MachTen, because A/UX has to translate Mac Toolbox calls into UNIX-system calls. With MachTen, Finder operations, such as dragging a file to copy it, take only a little longer than they do on a Mac that doesn't have MachTen installed. As Figure 1 shows, however, Finder operations under A/UX take about twice as long as they normally would.

MachTen also has an advantage in the file-system arena. A/UX requires that Mac and UNIX partitions be present; although the Finder can see both, the shell can see only the UNIX partition. You can't access AppleShare servers or other users' shared Macs from an A/UX shell, nor can you read, write, delete, copy, or move files between Mac and UNIX partitions.

You also can't access files on floppies from the shell.

MachTen has no problems with such tasks, because it uses the Mac's file system directly. You can mount AppleShare volumes directly onto the UNIX file system, and you can access any files on AppleShare volumes from the shell. Similarly, floppies you insert into the drive mount automatically, and you can reach them via the shell or the Finder. For users on mixed networks, this advantage can be significant.

Developing Software. The A/UX 3.0 distribution includes C and FORTRAN compilers as well as BASIC and SNOBOL interpreters. Also included is the complete UNIX developers' workbench: an incremental make utility (for compiling only the changed portions of an application), lexical and syntactical analyzers, libraries for creating pure and hybrid UNIX and Mac utilities, X Window and networking libraries, a configuration-management package, and the UNIX compiler for compilers. We ported a 10,000-line public-domain package to A/UX in the time that it took to download the code and run the make procedure.

In MachTen, Tenon provides a C development environment based on the Free Software Foundation's Gnu-C compiler, and make is available as a separate package at extra cost. Libraries for development of pure UNIX applications are currently available, with hybrid Mac/UNIX libraries promised. Libraries to take advantage of the Mach kernel's multi-threaded tasking are also promised for later. X Window, Motif, and network libraries are available now.

With the general slowness of shell-based operations in MachTen, compiling programs can be painful. Additionally, Tenon chose not to implement virtual memory in this version (it's standard in A/UX), which adds to the frustration when you're trying to run the compiler. The compiler won't run with 4 megabytes of RAM; even with 8 megabytes, "insufficient memory" errors can occur. Tenon claims that System 7's virtual memory will overcome this problem, but we were never able to successfully demonstrate this claim.

Talking to the World

Connectivity is a major issue with UNIX. Its serial and TCP/IP (Transmission Control Protocol/Internet Protocol) networking utilities accustom users to

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Networking. A/UX and MachTen both have the most widely used and powerful TCP/IP utilities: NFS, the Network File System, with which you can establish a file server on a network; telnet and rlogin, which let you connect to remote systems; ftp, which lets you transfer files over networks; and a complete set of Remote Procedure Call utilities and libraries, which permit communications among programs running on networked machines. The most significant difference between A/UX and MachTen is that MachTen also implements these capabilities for AppleTalk (although performance over a LocalTalk network is sluggish).

The MachTen shell's slowness is apparent over a network. Logging in to MachTen via telnet or ftp can take a while. File-transfer rates from MachTen are generally slow; transferring files to MachTen is faster, because transfer speed is mostly a function of the sending system.

Problems also exist with the MachTen Router, the part of the software responsible for ensuring that network traffic reaches its appropriate destination. Each system keeps a local list of names, nicknames, and addresses for machines with which it routinely communicates. The local system also keeps the address of a

Nameserver, a larger machine that knows the addresses of every machine on the Internet — but that can't know Ethernet-card addresses and often doesn't know nicknames. Network utilities are supposed to check the local list first and then, if there are problems, ask the Nameserver. In MachTen, this logic is broken; if a Nameserver is present, the utilities don't bother to check the local list, and if the Nameserver doesn't know destination names, the utilities fail to route traffic correctly.

Tenon's technical-support people provided workarounds for these problems and have promised that they will be fixed in a future release, but anyone putting the current version onto a large network is going to have trouble.

Serial Communications. Since the early days, UNIX utilities have supported serial communications over modems and telephone lines. The versions of these utilities that came with MachTen 1.0 were either broken beyond use or worked only after a lot of finagling. These problems seem to have been fixed in version 2.0, although configuration is still difficult, as MachTen uses an old version of the underlying protocol, uucico. A/UX 2.0 had similar problems, but Apple has reimplemented the whole suite in version 3.0, using the latest version of uucico, and it

Table 1: Which UNIX Should You Nix?

	A/UX 3.0 ★★★★½	MachTen 2.0 ★★★
List price	\$709*	\$595†
Pros	Works with System 7. Fast shell operations. Entire UNIX in one package. Strong X Window System implementation.	Works with System 7. Good Finder integration. Lean system that works on any Mac. Uses the Mac file system. Networking implemented over AppleTalk.
Cons	Resource hog. Poor integration between Mac and UNIX file systems. Requires high-end Macs and Ethernet. Noticeable loss of Finder performance.	Slow shell operations. Poor documentation. Significant security risk. Poor X Window System implementation. Requires lots of memory to overcome lack of virtual memory. Requires extra purchases for complete UNIX system. Some networking bugs require workarounds.
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works like a charm. Setting up the configuration files is significantly easier than it was in earlier versions.

Electronic Mail. Electronic mail comes standard with UNIX, courtesy of a background task (a *daemon*, in UNIX-speak) called *sendmail*. The version of *sendmail* that came with A/UX 2.0 was seriously damaged, taking addresses only from the local list and never asking the Nameserver for help. Thankfully, this problem has been corrected in version 3.0. In MachTen, however, the problems with the Router carry over into the electronic-mail system. Without a Nameserver, the reach of electronic mail is limited; with one, you still need to edit the startup file manually to ensure correct Ethernet-card initialization before you can connect to the network. As with its other network-based utilities, MachTen's *sendmail* takes addresses from the local list or from the Nameserver but not from both.

X Window System. No modern UNIX system would be complete without support for the graphical X Window System

environment (see "Opening the X Window," June '92, page 205). To support the X Window System, your Mac needs an X server, a program that controls the windows and other display elements locally while it listens for commands from client applications running anywhere on the network. A/UX provides a native X server, under which X applications can run but Mac applications can't, and an X-server emulator, MacX, which runs under the Finder. Both servers are excellent, and the native server rivals that found on dedicated UNIX workstations such as Sun SPARCstations or Digital DECstations. The need to map X-system calls to Mac calls in MacX diminishes performance, but MacX is still a very acceptable X-server implementation.

MachTen provides X connectivity via XTen, which is a repackaging of White Pine Software's *eXodus*, version 4. With this X-server implementation, we could never get an X application to start if a log-in password was required, as is usually the case. After clearing away the

password-entry dialog box, MachTen gives you a "busy" cursor for a while and then gives up. If no password is required, the X application starts up correctly.

The Bottom Line

A/UX gives experienced UNIX users a system to rival that available on any workstation. It's robust and, for the hardware on which it operates, fast as well. The Commando utility lets neophytes use UNIX commands without having to navigate the shells, which can be an advantage. Although its resource demands are great and its Finder performance is slow compared with MachTen's, A/UX is definitely the system for serious UNIX users and institutions; it's a heavyweight among UNIX varieties, and version 3.0 addresses almost all the criticisms leveled against earlier versions.

If A/UX is a heavyweight, MachTen is a lightweight in size but a middleweight in capabilities. It provides almost everything required of a UNIX system, without demanding expensive hardware upgrades.

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It also uses much less disk space than A/UX does and integrates smoothly with the standard Mac file system, a feature that by itself makes MachTen worth its price. Its ability to use AppleTalk for UNIX networking operations makes it well suited to small organizations that have an established Mac network. For outfits with a mixture of Ethernet and

AppleTalk networks, it can provide an inexpensive gateway between the two.

Still, MachTen isn't quite ready to take on the champ. The slowness of its UNIX side can be annoying, and its networking is buggy. In addition, its implementation of UNIX security is seriously flawed. A complete MachTen system also costs more than an A/UX system if you don't include

hardware requirements. For educational institutions and students with an investment in low-end Mac hardware, however, it provides a useful way to climb into the UNIX ring. 

Like the stereotypical UNIX user, Ian Bacon is myopic, but he *can* type with more than two fingers and he often wears shoes instead of sandals.

On the Horizon

The Apple/IBM alliance is likely to bring some changes to the UNIX arena. Machines based on the PowerPC RISC chip that the two companies expect to produce will feature a version of UNIX called PowerOpen (awaited with mixed feelings by those of us unfortunate enough to have crossed paths with AIX, IBM's version of UNIX). PowerOpen will be based on the Mach kernel, with a System V, Release 4, UNIX layered on top of it. Rather than run the Mac OS as an application, as A/UX does, PowerOpen is expected to integrate the Finder

interface at the lowest levels of the operating system. PowerOpen will also be able to run AIX applications, which number in the thousands.

Tenon will probably upgrade MachTen to version 3.0 of the Mach kernel and add the latest — also the last — release of BSD (Berkeley Software Distribution) UNIX, 4.4, which contains no AT&T code. However, MachTen's changes could be upstaged by a new product: Carnegie-Mellon University, the creator of the Mach kernel, plans to release a package called MacMach

toward the end of the year. Expected to come in source-code form on CD-ROM, MacMach will provide everything that MachTen does, except that Finder integration may cost extra and won't include source code (it's Apple's proprietary code). The price of the package is expected to be around \$100, but don't jump for joy yet — you won't be able to get MacMach unless you have an AT&T System V source-code license, which you probably don't have (and can't afford) unless you're buying for a university or a large organization.

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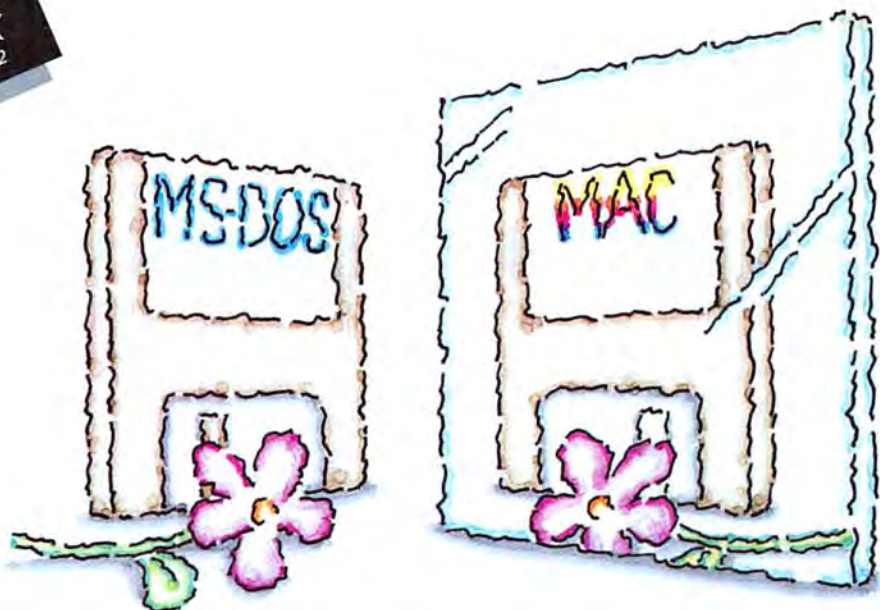
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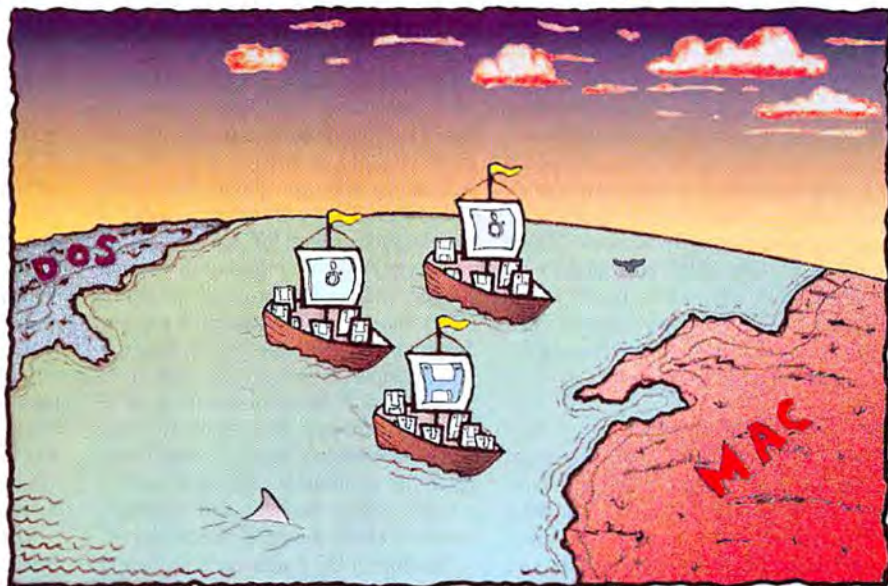
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Reading Foreign Floppies

Our new "platform correct" columnist tells you what products help you feed DOS floppies to Macs — and vice versa.

By John Rizzo



Mac and DOS software vendors are adopting a new attitude these days: I call it *platform correctness* (or *PC* for short — not to be confused with the abbreviation for *personal computer*). Platform-correct vendors such as Microsoft, Claris, and Novell paint glowing pictures of Macs and Intel-based machines coexisting in harmony, using the same software, data, and networks. Even Apple, which began a tough Windows-bashing ad campaign this summer, is publicly encouraging Mac developers to create software for Microsoft Windows as well. John Sculley went so far as to hold a press conference with Apple archenemy Bill Gates, with as much hoopla as John and Yoko calling for world peace from a hotel bed. The problem with the platform-correct spiel is that it's about as realistic as saying, "Hey, isn't it great that we all speak Esperanto now!"

I'm not saying the Mac can't communicate with other platforms. I just wrote a book that demonstrates how the Mac is the best-connected desktop machine around (*The MacUser Guide to Connectivity*, Emeryville, CA: Ziff-Davis Press, 1992). The problem is that exchanging information among platforms isn't as easy as it should be. Finding what works for your situation can be tough, because it's rare that a single product will solve all your connectivity problems — despite the optimistic claims of the platform-correct crowd.

During the many months I spent researching and testing for my book, I came across

scores of ways to build bridges between the Mac and the PC. Each month, I'll reveal some of those ways — as well as some of the newest developments in making Macs and PCs work together — in this column. And as the platform-correct vision becomes more of a reality, I'll also share some tips on connecting to other platforms further afield.

Getting Down to Basics

Sculley and Gates can talk about open-database cross-platform connectivity being the future; I'll start with something a little more practical and relevant to the rest of us.

The most common task people want to accomplish in Mac-to-PC connectivity is the sharing of files. This process is becoming easier, with software vendors enabling users to move files between the Mac and the PC version of a program and with Mac software supporting file formats that PC software can read. File translators take care of most of the remaining problems of getting Mac and PC applications to recognize each other's files. Yet multiplatform software doesn't do anything about the problem of actually *moving* the files between a Mac and a PC. The simplest, cheapest, and still the most versatile method of transferring files between Macs and PCs is the plain old low-tech floppy disk.

People who believe floppy disks will soon disappear probably also believe in the paperless office. Even if every Mac and PC in the world were connected to a giant Novell wide-area

network, we'd still need the convenience and low cost of floppy disks.

When you're sharing floppy disks with PC users, it doesn't matter whether the PCs are running DOS or Windows. Windows isn't an operating system but rather a front-end user interface that sits on top of DOS. So what's good for DOS is good for Windows, as far as transferring files to a Mac is concerned. This situation may change when Microsoft releases Windows NT, which will be an entirely new operating system — Microsoft promises backward compatibility for Windows and DOS products, but I wouldn't bet that the current Mac-to-PC file-transfer products will continue to work. For now, though, we can treat DOS and Windows files as the same for file-transfer purposes.

Hardware How-to

Macs as well as PCs can use those familiar 3.5-inch disks (although some PCs still use 5.25-inch floppies). Mac disks come in 800K and 1.44-megabyte sizes, and PC disks generally come in 720K and 1.44-megabyte sizes. The main distinction between Mac floppies and PC floppies is in how they're formatted; data is stored differently on the two types.

The good news is that the Mac's floppy drive can read floppies formatted on PCs. Since 1989, most Mac models have shipped with an internal 3.5-inch floppy drive — Apple modestly calls it the SuperDrive — that can read from and write to 3.5-inch 720K and 1.44-megabyte PC floppies. You can also buy external SuperDrives from Apple and similar drives from other vendors as well as drives that can read 5.25-inch DOS floppies. I recommend the DaynaFILE drive (\$599), from Dayna (801-531-0600), which is easier to set up and use than Apple's.

The bad news is that the Finder doesn't recognize PC floppies. Put one in your Mac's SuperDrive, and your Mac asks if you want to initialize it. You can use the rather clumsy Apple File Exchange utility that comes with the system software to access the PC disk, but it's a lot more convenient to mount the PC floppy on your desktop.

Fortunately, you can do just that by adding a small file to your System Folder. DOS Mounter (\$89.95), from Dayna, and AccessPC (\$99.95), from Insignia (415-694-7600), let you click and drag files between a Mac hard disk and a PC floppy just as you do with a Mac floppy. They also let you mount SyQuest, Bernoulli,

and erasable optical cartridges that have been formatted on a PC.

Another feature of these products is *extension mapping*, which lets you double-click on a DOS file and have it open in a Mac application. Extension mapping looks at the three characters after the dot in a DOS filename and assigns invisible four-letter Mac Creator and Type codes to the file. The Creator code designates the application, such as Microsoft Word, that will launch when you double-click on the file, and the Type code designates the file format, such as text, PICT, or WKS.

This year Apple introduced a similar product with its Macintosh PC Exchange (\$79), but I'd say it's too little too late. Macintosh PC Exchange works only with Apple SuperDrives and not with third-party external drives or any type of removable-cartridge drive. It doesn't even work with Apple's own 5.25-inch floppy drive. In addition, it requires System 7, whereas DOS Mounter and AccessPC work with both System 6 and System 7.

Macintosh PC Exchange's limitations are puzzling when you consider that Apple is delivering some of the strongest platform-correct rhetoric in the industry. It's also strange that Apple waited almost four years after releasing the SuperDrive to release Macintosh PC Exchange. Apple will eventually build this function into the system software, although it could have — and should have — done so long ago.

Heretical Advice

This may be a first for *MacUser* — perhaps even heresy — but I'm now going to recommend some PC products. That's because reading PC disks on your Mac is just one side of the story. If you're a creator of information rather than a recipient, you may want to enable the PCs in your organization to read Mac floppies. You can do this with inexpensive add-on software or hardware or sometimes both.


MatchMaker (\$149), from Micro-Solutions Computer Products (815-756-3411), consists of software and an add-in card that let you connect Mac external floppy drives to a PC. When you run MatchMaker's MAC.COM program, the Mac floppy drive becomes the M drive on the PC. To access it, a PC user adds an M to the beginning of standard DOS commands. *MDIR* presents a list of folders, or *directories* in PC lingo, *MCOPY* copies a Mac file, and so on. MatchMaker displays the entire Mac filename, which can

be as long as 32 characters. Without MatchMaker, when Mac files are copied to a DOS volume, their filenames are truncated to follow that annoying DOS filename convention: eight characters followed by a three-character extension.

If you don't happen to have extra Mac floppy drives to donate to your PCs, you can use the Deluxe Option Board (\$179), from Central Point Software (503-690-8090), an add-in controller board that lets a PC drive read Mac disks when you run the included Macintosh Control software. When you exit from the program, the drive reverts to using the original PC controller board. Unfortunately, several drives — such as models from Mitsubishi and Panasonic — don't work with the Deluxe Option Board, so before you buy it, check with Central Point to make sure it will work with your drive. Both MatchMaker and the Deluxe Option Board can read the standard 800K Mac floppies but not the newer 1.44-megabyte ones.

Two software-only products — Mac-in-DOS (\$199 for the DOS version, \$249 for the Windows version), from Pacific Micro (415-948-6200), and Mac-to-DOS 3.0 (\$179), from PLI (510-657-2211) — can use only 1.44-megabyte floppies. One drawback to using these products is that you can access the Mac disks only from within the software. Of the two, Mac-to-DOS has some advantages and is the better buy. For one thing, it has a basic text editor that lets you write directly to ASCII files on the Mac disk. Also, it can read from, write to, and format Mac SyQuest, Bernoulli, and erasable optical cartridges, particularly useful features for moving large graphics files across platforms. When you have to move such large files, the small size of a floppy disk makes it more useful as a coaster than as a file-transport medium.

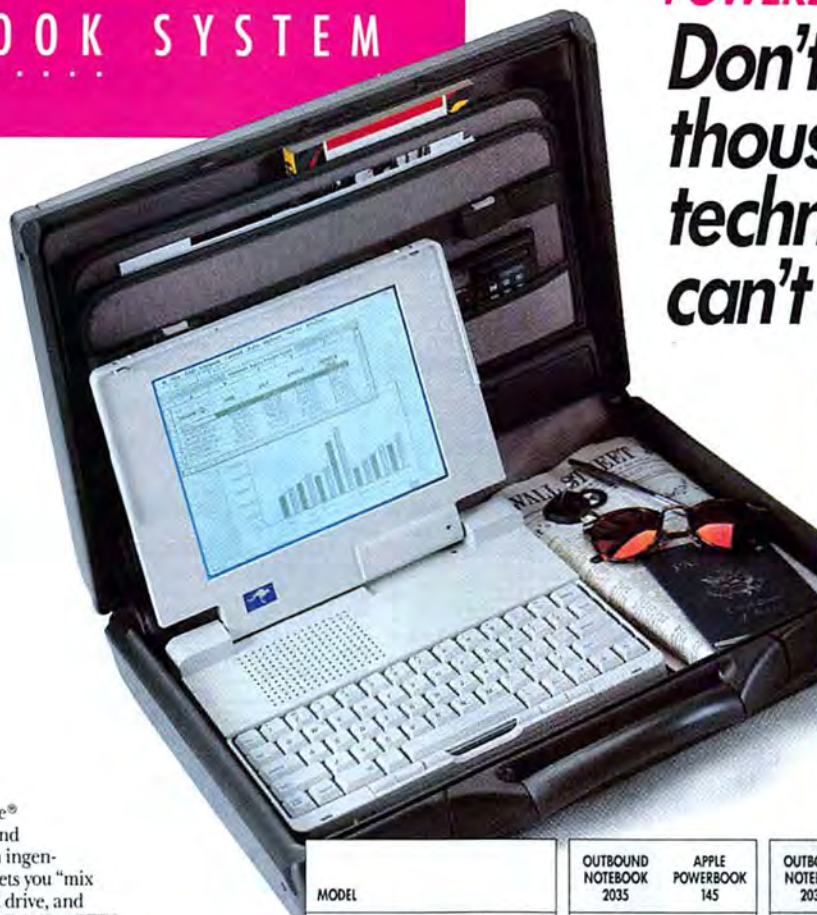
Are We PC Yet?

Sharing floppies is a solid first step toward bridging the Mac/PC gap. But don't believe everything the big software vendors say — you may still have to use file translators (the subject of a future column). Still, with the low cost and convenience of floppies, there is no reason that swapping them with PC users shouldn't be as common as having SuperDrives in your office. 

John Rizzo is *MacUser's* platform-correct technical editor and the author of *The MacUser Guide to Connectivity*.

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Does the world really need another Talking Moose? The Moose's custodian, Baseline Publishing (901-682-9676), is betting that I Like Icon will be the next must-have stupid Mac trick. The program not only provides tools for creating your own custom file icons (no big deal there) but also lets you turn an icon into a QuickTime movie — complete with soundtrack. At least you don't have to wait for the entire animation to complete before a file launches — animation stops when you double-click on the icon. \$69.95.

By James Bradbury

Dark stars: Ever wonder how toasters learned to fly? Erfert Fenton's *Art of Darkness* (Berkeley, California: Peachpit Press, 1992) not only has a wonderful title but also details **all the wacky modules** that have been written for Berkeley Systems' After Dark screen saver. The book comes with a disk of exclusive new After Dark modules, from Berkeley Systems, including ProtoToasters (the original demo of Flying Toasters). 510-548-5991. \$19.95.



Performa fodder: Apple Computer's new Performa 600 CD Macs and their built-in CD-ROM drives won't be starving for discs, based on the number of new multimedia titles appearing. Here are two to keep an eye out for: Sanctuary Woods Multimedia's *The Awesome Adventures of Victor Vector* and Yondo: *The Vampire's Coffin* is the first in a series of adventure-story games for kids (Yondo's a dog). VV and Y has a comic-book illustration style, which isn't surprising, because the artist, Ken Steacy, has previously drawn **Superman and Spiderman**. 604-380-7582. \$59.95.



From CD-ROM stalwart The Voyager Company, there's *From Alice to Ocean*, a \$29.95 CD-ROM by photographer Rick Smolan (best known for the *A Day in the Life of...* series) and Robyn Davidson. The disc chronicles Davidson's trek on foot across the Australian outback. Apple was impressed enough that, at press time, it was considering bundling *From Alice to Ocean* with its new CD-ROM-equipped Macs. 310-451-1383.

The final frontier: If you're ready to boldly go where no Mac has gone before, there's never been a better time. Start off with a copy of Berkeley Systems' *Star Trek: The Screen Saver*, a set of Trek-inspired After Dark modules. 510-540-5535. \$59.95. Serious Trekkies may already know about Sound Source Unlimited's *Star Trek AudioClips* packages, which let you assign popular sounds from all over the Federation to your Mac's system beeps. Four volumes are available: two from the original show (\$59.95 each) and two from "Star Trek: The Next Generation" (\$69.95 each). But did you know that you can also now get AudioClips for *2001: A Space Odyssey* (\$69.95) and *Star Wars* (price to be set)? All of these are fully **licensed and legal**, unlike clips that you might download from bulletin boards or record yourself. 805-494-9996. Finally, no Mac Trek fan would want to be without an official Star Trek (regular or Next Generation) mousepad. They're \$16.95 each, from Paradigm Concepts. 800-466-3957.



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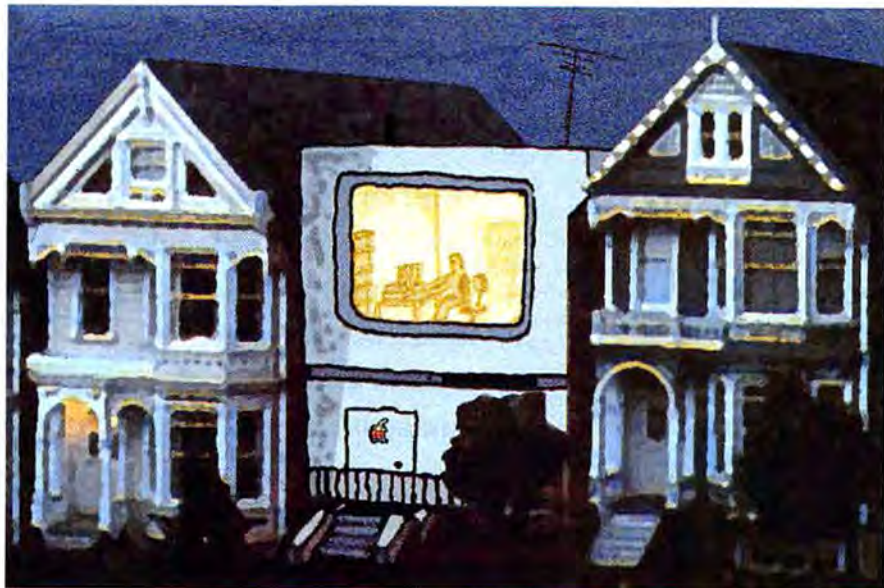
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Home Sweet Office

Thanks to PowerBooks and low-cost Macs, more people than ever are now taking work home — or working exclusively at home. Here's how to make working at home work for you.

By Steven Bobker



Virtually all computer users have an office at home. In the case of a rapidly increasing number of us, our home is our primary work place. For many others, a home office is a necessary part of their job. Even casual Mac users, those people who use their Macs for correspondence, recipes, and bill paying, frequently have an area that could be considered a home office.

A home office is a good idea for anyone who has a computer. The office space protects the computer and other equipment while creating an environment that lets you make the most of your tools. The dining-room table can be OK for casual use, but a dedicated work space is always much better.

A home office doesn't have to be a separate room, although that's best. It can be a space along a wall, a niche, or as in some of the more innovative installations I've seen, a large closet. There are three defining rules: It must be used exclusively for work (if not, amongst other losses, you lose any tax breaks), you must be able to secure at least some of the area (a lockable drawer or a file cabinet is sometimes sufficient), and you must be able to control the environment (noise, light, ventilation, temperature, and so on) in the area. These are pretty loose rules, and that's good, because work can be defined in a very wide manner.

The most important thing you need in order to make your home office a productivity center is self-discipline. It's all too easy not to

work enough. I have two neat signs I had made, positioned on my bulletin board where I see them every time I look up. The more important one, especially for free-lancers whose home office is their only office, says, "No work, no money." Yes, that's obvious, but all home workers forget it at times.

The second sign appears to be a statement of the freedom of the home office. It says, "Deadlines amuse me." Deadlines are actually very serious matters, and meeting them can be difficult for home-office workers; in larger offices, supervisors and other people are available to do the reminding.

At home, you need a non-human-based reminder system. The signs are part 1 of my system. They're a constant reminder to myself that the temptations of the home can overwhelm the requirements of the job at hand. Part 2 is a good on-screen reminder system, and many programs offer such features. I use AlarmsClock, which was a module of Now Software's Now Utilities (through version 3). Version 4 doesn't have it, but it's available as part of Now Up-to-Date, an excellent scheduling program.

Other good reminder programs are Visionary Software's First Things First and the \$20 shareware program Remember 2.3.2 (it's available in Library 2 of ZiffNet/Mac's Download & Support Forum; the filename is REMDA.SEA).

Computers are the most important hardware in an office, so take good care of them.

Get a backup tape or optical-disc drive, and use it faithfully. I use an Archive Python DAT drive, from APS (800-233-7550). I use it often, at least daily and sometimes every hour or so. It's proven to be utterly reliable, and the tapes are inexpensive.

If you live in an area where electricity tends to be unreliable, get a good-sized (at least 300 watts) uninterruptible-power supply. These devices instantly detect power failures and step in before your computer shuts down. They consist mostly of batteries, making them relatively big and heavy. The batteries can power your computer long enough for you to save all open files and do an orderly and safe shutdown. Although the units aren't cheap (good ones cost hundreds of dollars), after you've made one or two saves, they've paid for themselves.

Don't forget to insure your computers and software. Homeowner and renter policies typically offer a computer-equipment rider for a modest additional premium. There are two major drawbacks. The first is that the maximum rider is often limited to \$5,000 or \$10,000, which isn't much, especially when you add in the value of your software. The second problem is that you may not qualify if your home office is your primary work place. In that case, you'll have to purchase far more expensive commercial-office insurance. An option in both situations is to get a supplemental policy from a computer-specialty insurer such as Safeware (800-848-3469 or 614-262-0559). In any event, your hardware and software should be insured.

Home offices require at least two phone lines. Your regular household line can serve as the first, especially if your home office is not your primary place of business. The second line serves a multitude of purposes and is primarily for the use of your modem and fax machine. You'll find that the most important use of a second line is that it allows you to use your modem at the same time as you are talking on the phone.

Your home office needs a stand-alone fax machine and possibly a copier. Don't be taken in by the claims of vendors of cheap fax machines that they can also act as copiers. Technically the claims are true, but the output is the flimsy, fade-prone fax paper. Stand-alone fax machines are inexpensive, and the only must-have feature is a paper cutter. Even if you have a fax modem, you'll do better receiving

faxes on a stand-alone unit. Right now, computer fax-modem technology is such that characters on the received faxes are huge bit maps, which take a long time to receive, and the quality of the bit maps generally ranges from awful to really awful. The results are readable but not pleasantly so. There is an exception to this poor-quality received-fax rule. If you manage to connect to a compatible fax

Your home office needs a stand-alone fax machine and possibly a copier.

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modem, the results are spectacularly good. Your odds of connecting to such a fax modem are increasing daily but are still low. That'll change in a year or two, though. This year, for the first time, fax modems are expected to outsell stand-alone fax machines. A good stand-alone fax machine costs less than \$500 these days. If you want a plain-paper fax machine, the least expensive is HP's adaptation of the DeskWriter (alas, it can't also be used as a printer) at \$1,399. The consumables (ink and paper) cost is roughly equivalent to the cost of the cheaper thermal-fax-paper rolls for stand-alone machines. For more on how to buy fax modems, see Shopping List in this issue.

You can buy office supplies locally, but consider Reliable, a nationwide mail-order company. The company ships your order on the same day it's placed for next-day delivery anywhere in the country, charges 99 cents per order for shipping (for orders costing \$25 or more), and has great prices. Reliable is great to deal with and will readily put even the smallest accounts on terms. It's an amazing company. Call 800-735-4000 or 312-666-1800 for a catalog.

The table your equipment sits on, the

chair you sit on, and the lighting all have an effect on your productivity. Although you can work on a plywood sheet supported by sawhorses, you'll do much better with specialized tables and chairs. The best tables are the fully adjustable MacTables, sold by ScanCo (800-722-6263 or 206-481-5434). ScanCo also offers a nice rolling storage unit and a decent chair. I've bought several each of the desks and storage units, and they've held up extraordinarily well while providing great work surfaces.

The best chairs are the ergonomic office chairs sold by BackSaver Products (800-251-2225 or 508-429-5940). Prices of the chairs start at an expensive \$695 and go up to \$995 for the high-back leather version. They have every possible adjustment and have to be sat in to be believed. It's not just simply comfort — that'd put you to sleep. These chairs provide the proper support and positioning that allows you to work at high efficiency for long stretches. The BackChair that I use is probably the most important item in my office.

The best lighting is either fluorescent or halogen. Each is cooler and more energy efficient than incandescent lighting. No matter what kind of lighting you get, be sure to include shades and fixtures that have as much control as possible. Glare is a serious enemy of computer users. A good, albeit somewhat expensive, source of high-quality fixtures and odd bulbs is Levenger, a mail-order company. You can reach the company at 800-362-0880 or 407-276-2436.

Particularly good for low-cost lighting upgrades are the special halogen-retrofit bulbs sold by Levenger, Brookstone, and others. For less than \$10 per fixture, they can convert an ordinary lamp into an excellent halogen lamp.

Pick of the Month

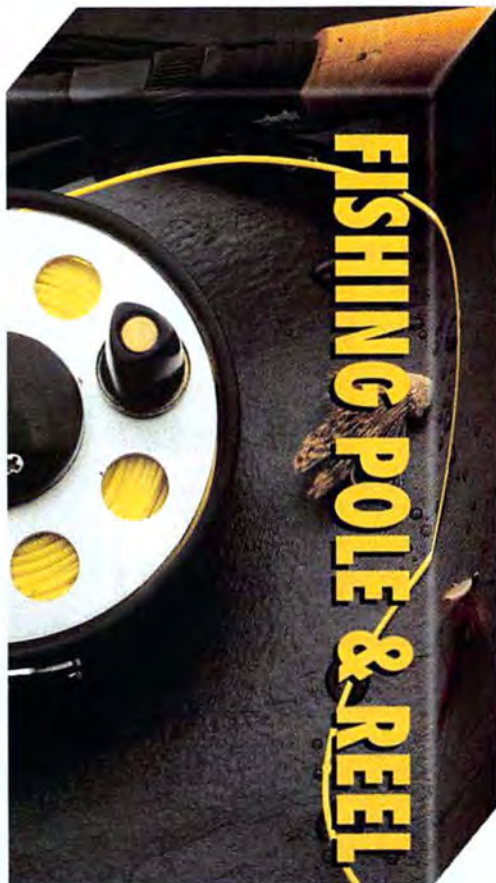
Another month and some more great books. If you're a PowerBook user, you owe it to yourself to read Rich Wolfson's *The PowerBook Companion* (Menlo Park, California: Addison-Wesley, 1992, 0-201-60884-7; \$24.94). It's a superb compendium of tricks, tips, and product advice. Not all the advice is sanctioned by Apple, but all of it is sound. As long as you pay attention to the book's safety precautions, there's no risk — and much to be gained — by following the instructions on upgrading and adding memory on your own. This is one of the best

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WristSaver Mini-Mousepad



The WristSaver Mousepad's success prompted the WristSaver Mini-Mousepad. At only 5" wide x 8.5" long it is 3" smaller than the original. This is ideal for people who don't have room for a standard size pad. It works well because of the built-in

wrist support that raises your wrist about 1" off the desk surface. Your precious desk space is saved and your wrists will thank you. Manufacturer: LB Innovators

ACC0757: Navy
ACC0760: Gray
ACC0759: Black
ACC0758: Red

\$12ea.



Word Finder Plus

① Word Finder Plus helps you find the best words to express your thoughts. Since it's a CDEV, it works with almost any Mac application - not just word processors, but also spreadsheets, database managers, page layout programs, and graphics applications. Designed for the modern business user and writer, Word Finder Plus contains over one million synonyms, yet occupies only 250K of disk space. It's autoflection feature returns the correct grammatical form of the selected word. Word Finder Plus is handy for creating headlines that fit the space and capture the readers attention. It helps find the right word or phrase for a text label in a drawing. Publisher: Microlytics SP10017

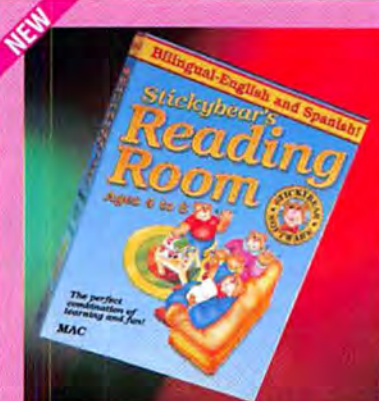
\$45

Capitalist Pig

① New! Animated business simulation game challenges you to build and run your own business under authentic economic conditions. Experience the challenge of business, scandals, fires, terrorists, and more, as you battle for billions—or bankruptcy. Make crucial business decisions every minute, and enjoy the results—or suffer the consequences. Packed with sound, animation, and fun, it draws rave reviews from would-be entrepreneurs of all ages. Capitalist Pig is the must-have "Game of the Year". You never knew business could be so stimulating! Publisher: Pluma Software ENT0447



\$35



Stickybear's Reading Room

① Stickybear's Reading Room makes reading fun for kids from four to eight. This bilingual learning application lets kids switch between English and Spanish at any time. Reading Room uses zany sound effects, stimulating graphics, and verbal reinforcement to entertain and stimulate children as they learn. For example, in the Word Bop game, a special toy cannon "bops" pictures into words, then back into pictures. In the Sentence Builder game, Reading Room reinforces and builds reading ability by animating the sentences kids create. The Word match game asks kids to match pictures with words, and rewards them with sound effects, graphics, and clearly spoken reinforcement. The Word Find game features hundreds of engaging animations. Publisher: Optimum Resource EDU0355

\$35

FREE!

POWER USER'S TOOL KIT 10.0

Version 10.0 of Steven Bobker's *Power User's Tool Kit* is stuffed with useful productivity enhancers and software to make your Mac more fun. A valuable collection of twelve programs, *The Power User's Tool Kit 10.0* includes three programs especially designed to take advantage of System 7*.

Here's what awaits you -- *Auto Menus II* makes your Mac's menus drop down automatically whenever you drag the cursor over them. *Ataxx* is a challenging game with elements of *Reversi*. *Simsonite* creates empty suitcases for storing and consolidating fonts and desk accessories. *Power Alias* consolidates as many as five aliases into one icon -- great for project management. *Window Wizard* provides a pop-up menu for System 7 users to switch from window to window and application to application. *Klondike* is an enticing version of the solitaire favorite, with an arcade game variation that will knock your socks off.

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- *Klondike* - An enticing version of the solitaire favorite, with an arcade game variation that will knock your socks off.

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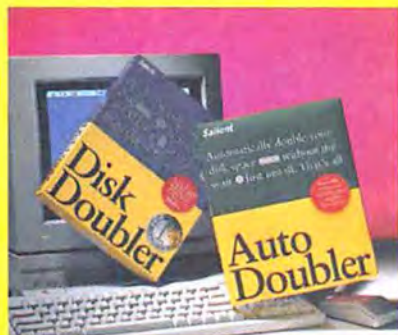
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Some of the programs are shareware, so you can try them free of charge. To continue using them, some authors ask that you pay a small fee (\$5-\$20). Two of the programs are absolutely FREE! The details are explained on the disk, which is yours to keep, with our compliments.

* All Software works with System 7, three programs are designed to take advantage of its new features.



AutoDoubler

AutoDoubler is the easiest way to increase your hard disk capacity. It works in the background to automatically keep your hard disk compressed. It's lightning quick and completely transparent, so it won't interrupt your work. In fact, AutoDoubler's new patent-pending technique lets your Macintosh use files and applications while they are still compressed! It's fully compatible with almost all applications, desk accessories, and system extensions. UT10254 \$49.

DiskDoubler 3.7

DiskDoubler gives you total control of file compression-archiving for modem transfer, compressed backups, self-expanding files, and fast copying of files. AutoDoubler and DiskDoubler combined give you the ultimate in speed, convenience, and control. System 7 Savvy!
Publisher: Salient UT10179

\$49

Encore 2.5 or MusicTime*

Special Offer, **FREE Trax** with purchase of either *Encore* or *MusicTime*. *Encore* lets you play, compose, edit, and print publisher-quality sheet music. Transcribe MIDI files or play music in from your MIDI keyboard. Includes Passport's "Frets" guitar chord font and Passport's TrueType music font. MUS0049 \$379.

MusicTime allows you to play, compose, record, and print out music with your Mac. Records music as you play it on a MIDI instrument and displays it in standard musical notation. Publisher: Passport Designs MUS0105

\$169*

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Aldus SuperPaint or Aldus Gallery Effects*

Aldus SuperPaint 3.0
Five time winner of MacWorld magazine's World Class Award, new Aldus SuperPaint combines painting, drawing, and image enhancement, and includes 1 thru 24 bit color, textures, gradients, and EPS graphics. GRA0112 \$133.
Aldus Gallery Effects 1991 MacUser's Editors' Choice Award for Best Visual Resource. Aldus Gallery Effects automatically transforms grayscale and color bitmap images into stunning, sophisticated art, with 16 master effects including Graphic Pen, Watercolor, and Charcoal. Works directly within programs like SuperPaint and Photoshop, or as an application or DA.
Publisher: Aldus GRA0279



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\$84

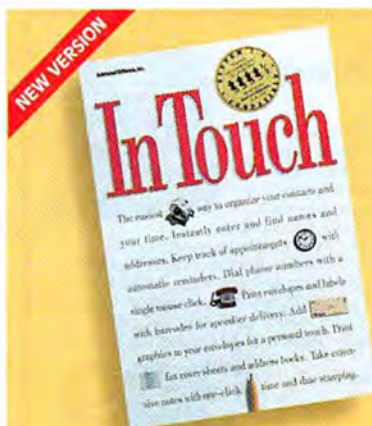
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Improving your environment is our business™.

Publisher:



CE SOFTWARE



InTouch 2.0

① InTouch 1.1 was rated "the best name-and-address DA for the Mac," MacUser Magazine, 4/91 (4.5 Mice rating). New InTouch 2.0 is even better! Version 2.0 adds an integrated reminder program, sorting, list view, phone books, fax cover sheets and much more. InTouch stores unlimited names, addresses, phone numbers and notes. The reminder program will notify you about that important meeting or phone call — it will even find the contact's number and dial it automatically. Sort your contacts into groups for easy printing of address books, mailing labels or envelopes. Share contacts with the lightning fast InTouch network.

Publisher: Advanced Software
Also available: DocuCompII DTP0081 \$99, and InTouch 2.0 Network-3Pack UT10210 \$109.

InTouch 2.0
UT10291

\$59



Sprout!

① Sprout! is a complete computer planning tool for vegetable gardeners. Its unique planting tool snaps to correct row and plant spacings and automatically fills in plant symbols, producing a graphic, scalable garden plan. In addition, Sprout! contains a fully editable database of vegetables for 7 climate regions containing: planting and harvesting times, yield, soil PH, growing tips, and other information. Standard text and drawing tools are included allowing users to create their own vegetable symbols and customize garden designs. Sprout! prints out garden layouts, calendars, shopping lists, and reports.

Publisher: Abracadabra
GRA0339

\$45

TouchBase 2.0 or DateBook

① TouchBase 2.0 stores information about personal and business contacts. Automatically capitalizes words and formats phone numbers. It has fields for storing alternative phone numbers, and you can customize the fields. TouchBase prints envelopes and mailing labels, including postalbar codes, plus many other useful forms. DAT0076



① DateBook is the ultimate personal time manager for Macintosh. Instant access and advanced scheduling keeps you on top of your appointments and things to do. DateBook makes it easy to plan your life. It shows your schedule in multiple formats including test, Gantt chart and time bar. DateBook's views enable you to see your schedule in as much detail as you like as quickly as possible.

TouchBase and DateBook Bundle BUS0253 \$125.
Publisher: After Hours Software

DateBook
BUS0222

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Effects Specialist or Layouts*

① Effects Specialist - Fire-Up Your Fonts! Don't settle for funky fonts. Get 120 spectacular effects, modifiable 1,000's of ways! Easily transformed from Postscript, bitmap, or True Type fonts. Exports EPS or PICT. Use with any DTP, drawing, WP or paint program. Kerning, color seps and lots more! Powerful, easy to use. DTP0062 \$99.

Layouts - Punch up your Creativity! Postcraft's award-winning Layouts; professionally-designed page-layout templates for PageMaker. A fascinating variety of camera-ready B&W and color designs - 33 Brochures, 14 Newsletters, 82 Business cards, 35 Letterheads, 48 Envelopes and 2 business-reply cards. Customize with your own copy, fonts, and graphics. Output to any printer. All templates have crop, registration, and fold/score marks. Publisher: Postcraft International DTP0063

\$75*



FileGuard

① "It's about as much software-based security as you can get in one package." MacUser, March 1992.

Protect your hard drive from unauthorized access (including security bypass with a system diskette), copying and erasure; applications and file/folders (including System folder) from unauthorized access, deletion, and/or illegal copying. Protect your desktop from alterations by unauthorized users. Keep an eye on System usage with FileGuard's Users Log which continuously tracks user/group activity. System 7.0 Compatible.

Publisher: ASD Software

Single
UT10135



\$139

Bridge 6.0 or Grail Quest*

Bridge 6.0

① Now you can play a rubber of Bridge on your Mac. Bridge 6.0 supplies three players and uses Standard American 5-card Major bidding with Stayman and Blackwood conventions. The program keeps score, deals opening hands at your request and more. ENT0303 \$29.

Grail Quest uses the Mac's sounds and graphics to put you inside the world of King Arthur's England. Best of all, its well-crafted plot and authentic settings are based on authentic tales of time by Geoffrey of Monmouth and Sir Thomas Malory. Publisher: Artworx ENT0262



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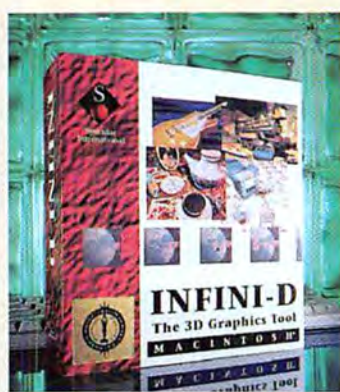
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MacEKG can warn you of computer failure BEFORE it happens. EKG monitors over 250 aspects of your system-logging and comparing results each time you reboot. EKG features advanced chip-level tests that were only available to Authorized Apple Technicians until now. Using EKG's Reactivator to continuously reboot simulates several days of heavy use to quickly diagnose intermittent failures. EKG can automatically run at startup or shutdown-making sure you are the first to know if your computer has failed a test or slowed down.

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Memory chips come factory-installed on plug-in cards, called SIMMs (Single Inline Memory Modules). Each one megabyte SIMMs card holds eight top quality,

To upgrade a 4-socket Mac Plus or SE to this amount of memory	Do this: (Install in multiples of two only) SIMMs must be 150ns or faster
2 MB	Remove all four existing 256K SIMMs, install two 1 MB SIMMs, leave two sockets for future expansion.
2 1/2 MB	Remove only two 256K SIMMs, install two 1 MB SIMMs.
4 MB	Replace all four 256K SIMMs with four 1 MB SIMMs.
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To upgrade a 8-socket Mac II, IIfx, IIfx, IIfx or SE/30 to this amount of memory	Do this: (Install in multiples of four only) SIMMs must be 120ns or faster
4 MB	Remove all four existing 256K SIMMs, install four 1 MB SIMMs, leave remaining sockets for future expansion.
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8 MB	Remove all four 256K SIMMs, install eight 1 MB SIMMs.
To upgrade a 4-socket Mac IIfx to this amount of memory	Do this: (Install in multiples of four only) SIMMs must be 100ns or faster
5 MB	Install four 1 MB SIMMs.
To upgrade a 4-socket Quadra 700 to this amount of memory	Do this: (Install in multiples of four only) SIMMs must be 80ns or faster
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MUL2P

CIRCLE 156 ON READER SERVICE CARD.

computer books of the year.

Nearly as good and a lot more fun is *Cool Mac Sounds*, by Craig O'Donnell (Carmel, Indiana: Hayden, 1992, 0-672-48523-0; \$19.95). This book details the whys and wherefores of all aspects of

sound (clips and voices — not music) on your Mac. It has decent sections on MIDI and other high-quality sound, but most of this book mixes practical and fun uses of short sounds. It's greatly enhanced by an included disk called *The Cool Sounds*.

This high-density disk (you need a SuperDrive to use it) holds more than 2.2 uncompressed megabytes of sound players, editors, and neat sounds — including the infamous MacPuke. No other product can help you add the sound dimension to your computer better or more easily.

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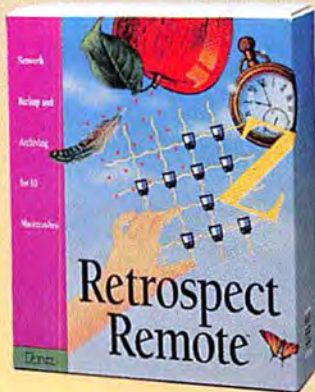
—MacWEEK, Dec. 1990

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—MacUser, Aug. 1991

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CIRCLE 28 ON READER SERVICE CARD.

An Initial Easter Egg


System 7 is just riddled with small and usually cute Easter eggs. François Grieu, of Paris, France, has found what might well be the oddest of the bunch.

When System 7 was being created, substantial revisions were made to HFS

System 7 is riddled with small and usually cute Easter eggs. When it was being created, substantial revisions were made to HFS, and the creators of this latest version wanted to sign their work.

(Hierarchical File System), which holds all your data in an organized but reasonably easy-to-use way. The creators of this latest version, it seems, wanted to sign their work.

To see their signatures, do the following. Insert any disk, and rename it to KMEG JJ KS (you must be exact — eight capital letters and two spaces, with no leading or trailing spaces). Next, eject the disk, using Command-E, so you leave a grayed-out image of it on the desktop. In many cases, the Mac will immediately request that you reinsert the disk. Take a good look at that request dialog box; it's not quite normal. If the request dialog box doesn't appear immediately, you can force it to appear by double-clicking on the grayed-out icon of KMEG JJ KS.

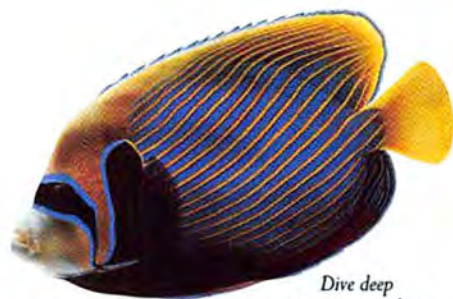
The question for this month's Easter-egg quiz is, Who are DNF and KSCT? For extra credit, what does the name of the disk mean? 

Once upon a time, Steven Bobker edited *MacUser*. These days, he runs the MacUser Forum on ZiffNet/Mac and searches the world for Easter eggs. You can reach him on ZiffNet/Mac at 72511.45.

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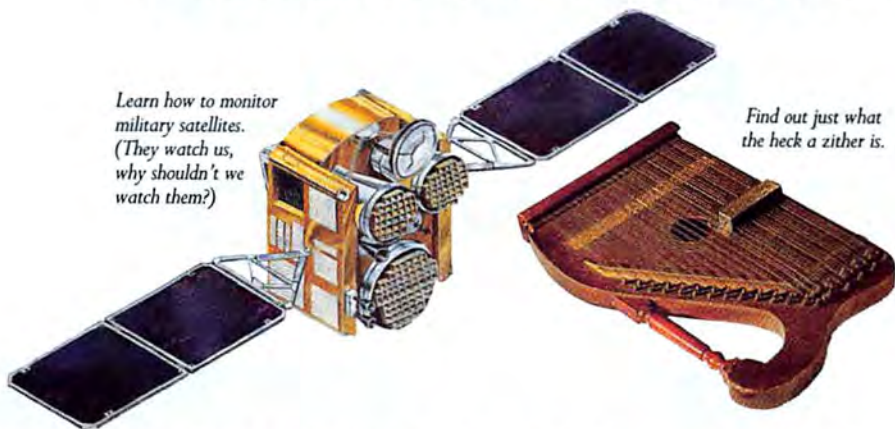
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Like whether a
canister or protein
filter is better
for a 110-gallon
salt-water tank.*

*Price a new Mustang.
Or just learn
everything about it.*

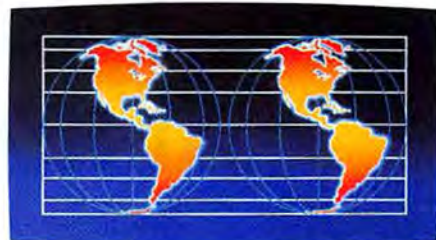


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OR



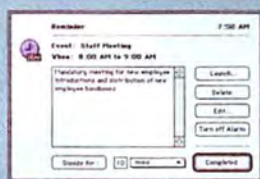


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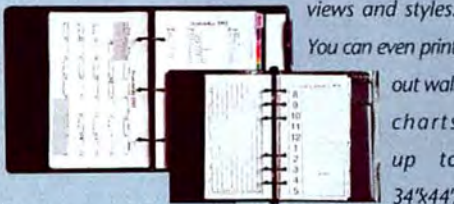
▼ The To Do list lets you schedule tasks for certain due dates or simply for whenever you get around to them. It also allows you to prioritize tasks and automatically forwards them on to the next day's To Do list until each task is completed.



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CAPTIONS THAT WE COULDN'T FIT DOWN HERE. THANKS.

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STEP 6. FLY TO ZIMBABWE. OKAY, NOW BRING UP YOUR CALENDAR ON YOUR POWERBOOK. GOOD. NOW COMPLETELY DISCOMBOBULATE THE THING. CHANGE IT ALL AROUND. GREAT. NOW CONNECT TO YOUR OFFICE VIA MODEM. PRESTO! ALL YOUR CALENDARS AUTOMATICALLY UPDATE THEMSELVES.

STEP 7. PICK UP NOW UP-TO-DATE 2.0. OR, FOR MORE INFO, GIVE US A CALL AT 1-800-237-3611.

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CIRCLE 130 ON READER SERVICE CARD.

Managing Power

Do you spend more time changing batteries than you do working with your PowerBook? A trio of new PowerBook utility packages could be the answer.

By Henry Bortman



Don't believe what Apple tells you about PowerBook battery life: two to three hours under normal usage. Yeah, right. I'm lucky if I get an hour and a half.

I've read all the tips and hints about how to squeeze an extra minute or two out of my batteries. Turn the screen brightness down as much as you can stand to. Check. When I'm not plugged in, I turn the brightness down as far as it will go without turning it off. I even got a copy of Backlight Control, a freeware utility from Ricardo Batista at Apple that turns the backlight off when it's not in use and turns it back on as soon as you move the mouse.

Don't let the hard disk spin needlessly. Check. I set the drive to spin down after about two minutes of being idle. Of course, whenever it spins down, the next thing I do causes it to spin up again. Especially when I'm using Microsoft Word. *Anything* you do in Microsoft Word makes an idle drive spin up. Pressing a cursor-control key — the kind of thing people have been known to do occasionally when word processing — makes the drive spin up in Word.

Put the CPU to sleep when you're not working. Check. It's always napping — sometimes I get envious. And then, every time it wakes up, I have to wait while it spins up the hard drive (don't ask me why; half the time, I'm not trying to do anything that requires the hard drive), turns on AppleTalk (never mind that I might not even be plugged in to a network), and who knows what else. All this, naturally,

drains the battery, stealing precious minutes from my productive life.

But does any of this do any good? I suppose so. But it sure doesn't get me two to three hours per battery. It probably gets me up from 45 minutes to an hour and a quarter. I've considered the possibility that my batteries are just lemons. *Other* people seem to get more life out of *their* batteries. (At least they claim to. I'm not sure they're any more reliable as sources than Apple's marketing department.)

And then — this *really* annoys me — every time my battery runs down, I have to shut down my PowerBook, change the battery, and restart the machine, which, of course, means a bunch of disk-drive churning just to get the system booted. And then, if I had some elaborate set of applications and documents open, I have to go back and re-create my work environment from scratch. More disk-drive churning. All of which means that before I can even get back to work, I've lost several minutes' worth of charge. Can someone please tell me why Apple could afford to stick a tiny backup battery, which keeps the contents of RAM intact while you change primary batteries, into the PowerBook 100 but was too cheap to stick one into the 140 (not to mention the new 145) and the 170?

Battery Management

Fortunately, there are some new utility packages for the PowerBook that alleviate some of these problems: the \$99 Connectix PowerBook

Utilities (CPU), from Connectix (415-571-5100); the \$99 Guy's Utilities for Macintosh — PowerBook Edition (GUM-P), from After Hours (818-780-2220); and PowerBoost, from Baseline (901-682-9676). (The price of PowerBoost was not set as we went to press but is expected to be less than \$150.)

At press time, only CPU was shipping; GUM-P and PowerBoost were in the late-alpha/early-beta-testing stage. Although they should be shipping by the time you read this, their interfaces and even their features may be different in the shipping versions than in the versions I saw. A fourth company, ALSoft, was reportedly working on a PowerBook utility package but wasn't quite ready to lift the veil of secrecy in time for me to include it in this article. (I guess you'll have to read about it in *MacWEEK*.)

All three of these utilities provide varying degrees of control over power-management factors such as backlighting control, hard-drive spin-down, and CPU sleep. CPU and PowerBoost provide two

File synchronization simplifies the process of maintaining identical copies of traveling files. GUM-P's InSynch module is a particularly elegant implementation of this function.

sets of controls, one for when your PowerBook is running off your battery and needs to be more energy-efficient and a separate set for when your PowerBook is plugged in to an AC outlet and you don't need to be so cautious.

Having two sets of controls is handy. Apple provides only one set, which is usually configured so that the PowerBook uses as little energy as possible when it's running off the battery. But when you've got your PowerBook plugged in to AC

power, it's annoying to have the CPU go to sleep or the hard drive spin down unnecessarily all the time.

GUM-P's Battery Saver module is even more elaborate than CPU's and PowerBoost's battery savers. It has three basic settings: Battery, Low Battery, and AC Power. In addition, it lets you customize settings for specific applications. For example, if you are using an application you know can fit entirely in RAM and won't require the use of the hard drive except for when you save your documents, you can set the time until the hard drive spins down to the shortest interval, saving yourself a little battery life.

CPU lets you create different sets of controls too, but for different working conditions — such as in the office or on an airplane — rather than for different applications. And it lets you store many such sets, each for a different user, which is useful if several people share a PowerBook. You can call up any of these configurations on the fly.

None of the three products, however,

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provides software controls that let you set the brightness on the PowerBook's backlight. Because Apple engineers have cautioned users that turning down their backlights to the minimum acceptable setting is the most effective way to reduce battery power drain, this lack of brightness control seems a curious omission. Sure, you can still control the brightness manually. But I would prefer to see a full set of battery-management controls all in one place.

Another feature missing from all three products is integrated support for switching between the 16- and 25-megahertz modes on the PowerBooks 145 and 170. CPU has a menu-bar indicator that tells you, among other useful things, which mode you are currently operating in, but it doesn't give you any way to switch. Because the slower clock speed uses significantly less power than the faster one, I run at 16 megahertz when I'm using the battery and at 25 megahertz when I'm plugged in to AC power. I'd like to see a dialog box pop up whenever I change

from battery to AC (or vice versa), asking me if I want to switch to the appropriate clock speed. (Making this switch, unlike changing minutes-to-sleep or minutes-to-drive-spin-down, requires a system restart, but I'd still like to be prompted automatically and given the option.)

File Synchronization

GUM-P and PowerBoost each offer file synchronization; CPU doesn't (for more on file synchronization, see *Mobile Mac*, October '92, page 261). Many people who use PowerBooks also use a desktop machine. A problem that arises when they move files back and forth between two machines is that different versions of the files are created in the two locations. Such a situation can be deadly. File synchronization simplifies the process of maintaining identical copies of traveling files on both machines.

GUM-P's InSynch module is a particularly elegant implementation of this function. Most file-synchronization utilities require that you organize your file

structure to group files and folders that you want synchronized. InSynch takes a different approach: It creates a folder on the desktop of your PowerBook into which you can place aliases of files and folders you want synchronized with those on another machine. InSynch then synchronizes the selected files and folders while leaving them in their original locations.

Turn On, Tune In, Lock Out

Each program offers various other functions as well: security, AppleTalk controls, alternative cursors, menu-bar displays showing remaining battery life, and so on.

Security prevents unauthorized users from restarting or waking up your PowerBook unless they have a password. CPU offers an alternative form of security as well: It lets you install a screen image and select a specific pixel that a user must click on to power up. The AppleTalk controls are designed to do two things: reduce the wait at wake-up time associated with reconnecting to AppleTalk and

Access.

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NEW



reduce the amount of energy expended by the system when it is maintaining an AppleTalk connection. GUM-P appears to have the most extensive AppleTalk-management function. Alternative cursors, such as fat I-beam text cursors, make

it easier to see where your cursor is on the screen. CPU also provides a special cursor to indicate when your hard drive is spinning up or down.

And as for menu-bar displays that show remaining battery life, the only one I'd

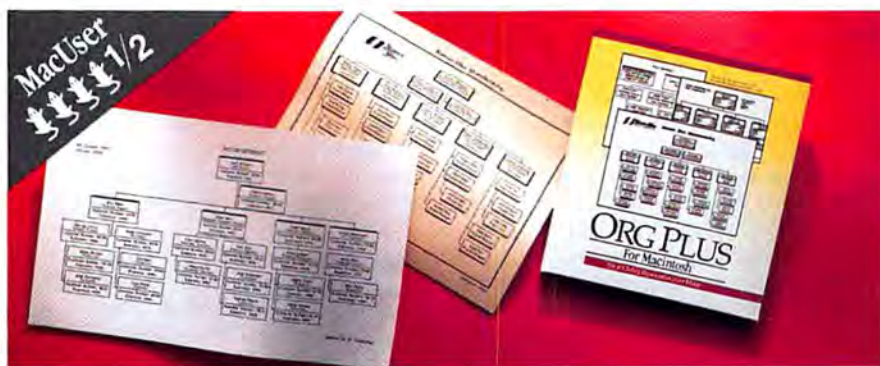
seen at press time was CPU's. The basic idea is to give you a more realistic assessment than does Apple's Battery DA of how much juice, and therefore time, you have left in your battery. It doesn't take much of an effort to outdo Apple here. But all three PowerBook-utility companies claim to have "intelligent" algorithms — some call them "semi-intelligent" — that watch how you use your PowerBook and accordingly adjust their assessments of how long you can expect to keep working before the dreaded Good Night

Although these products will certainly improve with time, they will probably not do what I want any time soon. So, for the record, here is my fantasy of what a PowerBook utility should do.

message graces your screen. I'm only somewhat comforted by CPU's confirmation of what I had suspected all along: that even when my battery is fully charged, I can expect only an hour and a half of PowerBook use before I have to shut down and switch batteries. And I still think it's exaggerating.

As with all software categories, these publishers will no doubt rush to include in their 1.1 releases the features that their competitors put into their initial offerings. But although these products will certainly improve with time, they will probably not do what I want any time soon. So, for the record, here is my fantasy of what a PowerBook utility should do: It should let me set up *complete* working environments.

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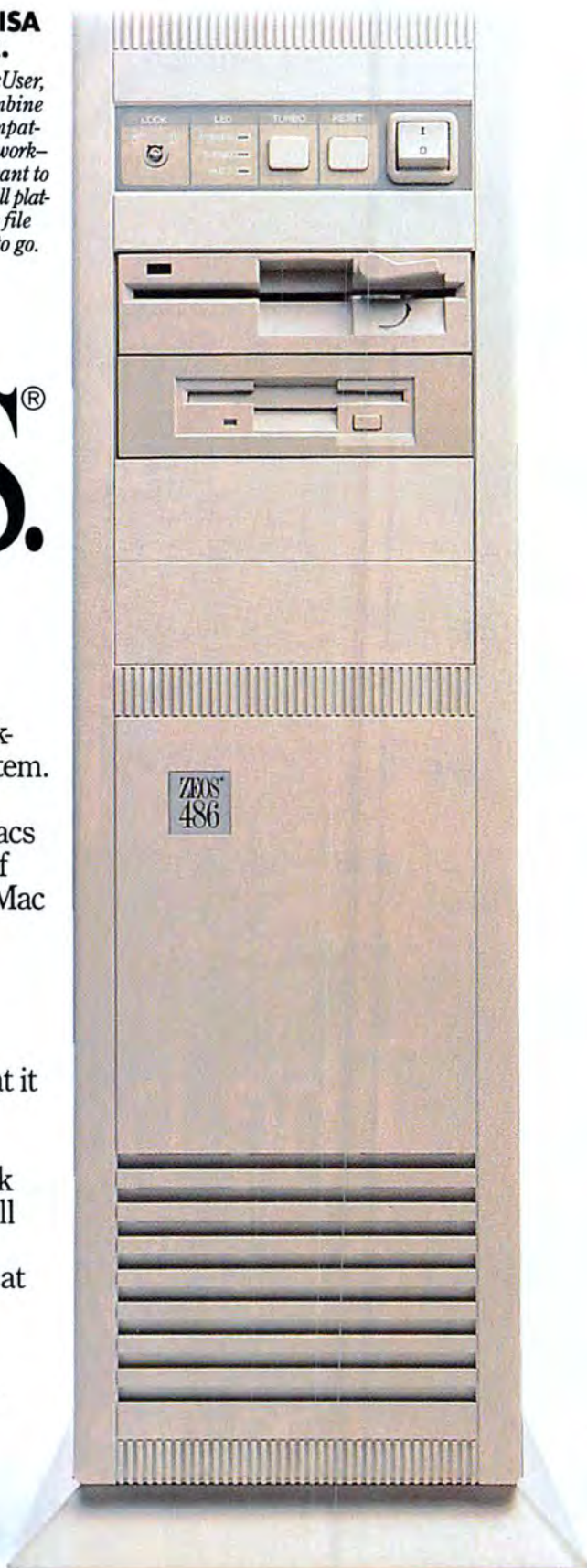
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don't want AppleTalk on at all, I want a minimum set of control panels and extensions, I want to run at 16 megahertz, and I want a RAM disk loaded with Word and Excel. You get the idea. Now, is that too much to ask?

Mobile Hack

Several freeware and shareware hacks are available that perform functions similar to the ones included in the commercial packages I've described. Many of them — CellMate, SpinD, SafeSleep, and

others — were listed in "This Month on ZiffNet/Mac," September '92, page 287. One of my favorite PowerBook hacks, however, has nothing to do with the issues discussed in this column. It's called PowerBook Pixels (it's available on ZiffNet/Mac in the Download and Support Forum, filename PBPIXL.CPT). It comprises two utilities, Darker! and PixelShootout, which are designed to get Apple to replace the active-matrix screen on your PowerBook 170 if you have even

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Pixel Shootout is more nefarious: It's a system extension that randomly and permanently turns off five pixels to make them appear dead, so that you can fool a dealer into believing that you are due a replacement screen.

one dead pixel (Apple's policy is to replace the screen only if five or more pixels are dead). Darker! blacks out your screen to let you see how many bad pixels you actually have.

Pixel Shootout is more nefarious: It's a system extension that randomly and permanently turns off five pixels to make them appear dead, so that you can fool a dealer into believing that you are due a replacement screen. Because the extension permanently alters your system, the only way to bring the dead pixels back to life is to reinstall your system software from scratch. Of course, a savvy dealer need only boot the PowerBook from a floppy disk to determine whether or not the pixels are playing possum.

Now, don't get the idea that I'm recommending using Pixel Shootout. I'm just letting you know what's out there. But it's a sad commentary on the dead-pixel roulette that Apple forces on PowerBook 170 purchasers that someone has gone to this much trouble to circumvent the official policy.

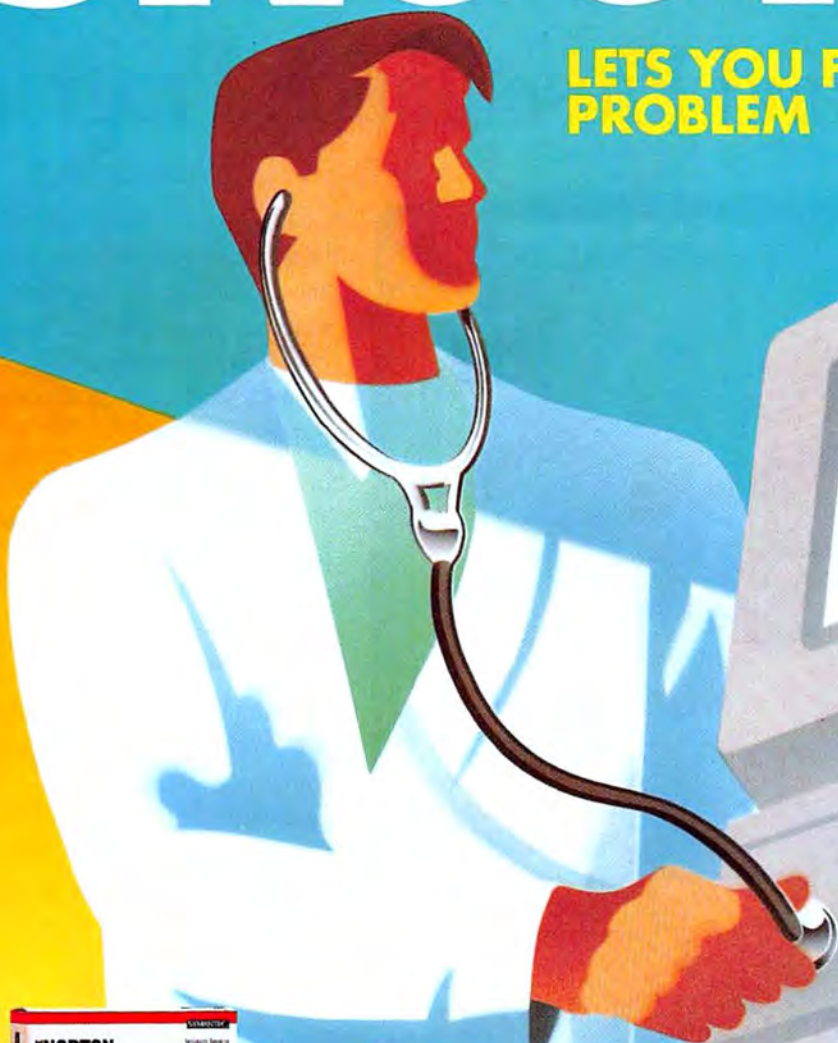
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Henry Bortman is *MacUser's* technical director.

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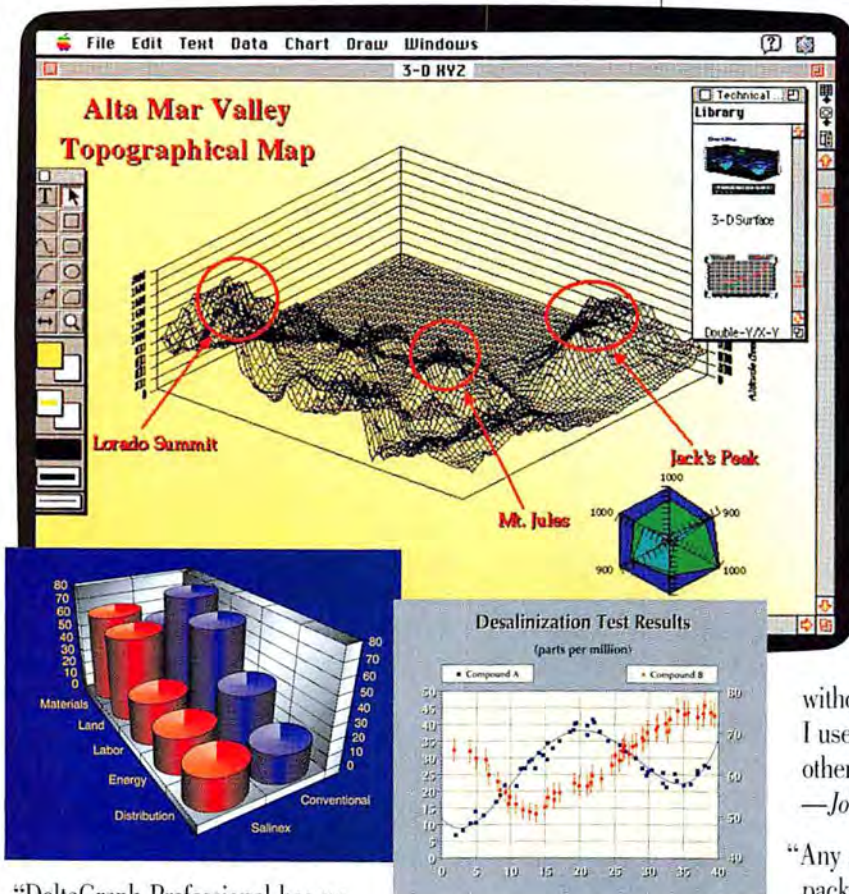
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Just as the fax machine threatens to make bicycle messengers extinct, the fax modem might be on the way to making fax machines obsolete. If you use your Mac to create most of the documents you fax (letters, memos, and so on), you should seriously consider investing in a fax modem. Most of them now have easy-to-use software that makes faxing a document from your Mac almost as easy as printing it. And fax modems are reasonably priced — street prices are less than \$400 for modems with fast fax- and data-transmission speeds. But before you go out and buy a fax modem, read the following tips.

For more on fax modems, see "Fast, Full-Featured Fax Modems," May '91, page 104, and for the lowdown on high-speed modems, see "Bargain Speedsters: V.32bis Modems," in this issue.

By Victoria von Biel

How to Buy

Fax Modems

☒ Confused about modem specs? You're not alone. A modem's data-transfer rate is given in bps, or bits per second. You can also tell a modem's speed by the CCITT (Comité Consultatif International de Télégraphie et Téléphonie) standards it supports. The bottom line is to look for a modem that's capable of fast data transmission, preferably with a data-transmission rate of 14.4 Kbps (the CCITT's V.32bis rating) and V.42bis data compression and V.42 error control; for fax transmissions, look for the CCITT V.17 rating (14.4 Kbps) for both sending *and* receiving. At today's prices, it doesn't pay to go below 9,600 bps for either data or fax transmissions.

☒ Although few fax machines operate at 14.4 Kbps now, it's still worth buying a high-speed fax modem — within a year, more machines will operate at the higher speed, and in the meantime, your modem's software will automatically slow the transmission speed down to match older devices.

☒ Read the description of what the modem does very carefully — ads can be very misleading. Fax modems may have different speeds for fax and data transmissions, but this information is seldom clearly explained. For example, a modem that can send a *fax* at 9,600 bps may transmit *data* at only 2,400 bps, or the modem may have a fax *sending* speed of 9,600 bps and a fax *receiving* speed of only 4,800 bps.

☒ If you'll be using AppleTalk Remote Access (ARA) — and if you're seriously thinking of telecommuting, ARA is essential — you need a modem capable of data transmission at 9,600 bps; 14.4 Kbps is even better.

☒ ARA lets you connect to your office network, using a modem. You then have access to servers, printers, and desktop Macs that have been made available via System 7's file-sharing capabilities. If you'll be using ARA, make sure the modem has a CCL (connection control language) file for ARA — not all do. A

CCL file contains the sequence of commands that the software needs to establish connection with the modem at the other end.

☒ Send-only fax modems are slightly less expensive than modems that can also receive faxes, but unless you already have a fax machine and know that you will never want to use your modem to receive faxes, you may as well pay a little extra for the ability to receive them too.


☒ If you'll be faxing from your PowerBook, an internal modem is a must. Although an internal modem is more expensive than most external models, the ease of use of a built-in fax modem makes it well worth the extra cost. Another benefit is that you don't have to carry around a printer: Simply dial a fax machine, and let it print out your files.

☒ A fax modem receives a fax as a graphic, not as editable text. To convert the fax to text, you must scan it, using OCR (optical character recognition) software. This process will become easier with forthcoming OCR fax software from Calera and Stf Technologies that will automatically convert faxes to editable text.

☒ Look for products that use enveloping, a technique that lets you place several fax-formatted files in an envelope to be sent as a single fax transmission.

☒ For good-quality text when sending faxes, make sure you have ATM installed or use a non-PostScript rasterizer such as Freedom of Press.

☒ If possible, test a few fax modems (using documents that combine text and graphics) before making a buying decision. Modems differ widely in the quality of the graphics they produce, and testing is the only way to be sure you're getting the best.

☒ For the ultimate in convenience, you can get fax modems that can manage your voice mail. The modem digitizes phone messages and stores them on your Mac's hard drive. 

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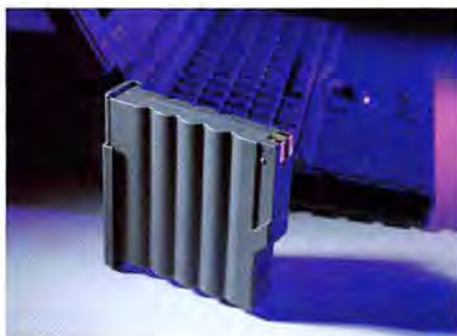
By Victoria von Biel

Palette-able: Move over HAND-Off II (and DiskTools, Tiles, HAM, On Cue, and Now Utilities), there's yet another file launcher on the market. Square One, from PBM (as in Please Buy My) Software, arranges your frequently used applications and related documents into a palette that

you can place anywhere on your screen. Written by TouchBASE author Jud Spencer, Square One's best feature is the speed with which you can get it running. It scans your hard disk for all applications (or all documents created by a particular application), so all you have to do is select the files you want to add to the palette. After you've configured the program, go to About Square One on the Apple menu — the credits read like an **Oscar-acceptance speech** and contain some pretty good restaurant picks. 415-508-1536. \$59.

Makin' copies: Talking about fixing the Finder, there are now a couple of products that replace the Finder's copy function, making copying files a lot easier and faster. CopyDoubler, from Fifth Generation Systems, is a neat little utility that copies twice as fast as the Finder and also makes emptying the Trash a breeze (it lets you **trash locked files**). At the moment, it's packaged with the compression program AutoDoubler 2.0 (which Fifth Generation recently bought from Salient), but look for a stand-alone version soon. 800-873-4384 or 504-291-7221. \$99.95. ★ CSG Technologies' CopyRight (\$49) lets you copy files and folders in the background and still do such things as launch applications and delete files. Even better, you can simultaneously copy several files to different destinations. CopyRight Pro (\$79) lets you copy files and folders at designated times, for backup. 800-366-4622 or 412-471-7170.

Power play: PowerBooks are great, but the battery's a joke, right? Recognizing a good opportunity when it sees one, Battery Technology has produced the MC-170, a replacement for Apple's battery pack that you can use with the PowerBook 140 and 170 and that gives you a *little* more operating time before you get that "You are now running on reserve power" message. Battery Technology claims that the MC-170 **lasts 25-percent longer** than Apple's battery pack. The MC-170 also has a hard-plastic cover for the contacts, which helps keep the plates from getting dirty. 213-725-3517. \$89.95. 🖱️



Virus Alert

By Michele Hasson

A few months ago, PC owners were alerted to the imminent arrival of the Michelangelo virus, which threatened to trash electronic files. On that occasion, Mac users could rest easy, because Michelangelo struck only IBM PCs and clones. Macs aren't always immune from viruses, however — on Friday, November 13, 1992, the INIT 1984 virus is scheduled to strike. INIT 1984 is similar to the Michelangelo virus in that it can change the names and attributes of files and folders and ultimately destroy them. As its

name implies, the INIT 1984 virus infects only system extensions; it spreads from extension to extension at startup.

A computer virus is a deliberately planted program or part of a program that invades a host computer. In most cases, the code has been altered and you don't realize your Mac has been infected until it's too late. A Mac can "catch" a virus from an infected floppy disk, a file downloaded from an on-line service or BBS (bulletin-board service), or an infected file transferred over a network. In some cases — although this is very rare — a

Install Virus-Detection Software

The best insurance against viruses is to install a virus-detection and protection utility. These extensions scan your system either automatically or at user-specified times. They alert you to the presence of a virus and eradicate it if possible.

Several antiviral utilities are available. Of the commercial products, the major players are SAM (\$99; upgrades, \$12),

from Symantec (408-253-9600); Virex (\$99.95; upgrades, \$15; annual subscription, \$75), from Microcom (919-490-1277); and Anti-Virus, which is part of MacTools 2.0 (\$149), from Central Point Software (503-690-8090). Some of the freeware and shareware utilities that are available from on-line services and user groups include Disinfectant (free), GateKeeper (free), VirusBlockade (shareware, \$70), and VirusDetective (shareware, \$40). Each of these programs can detect and eradicate the most common viruses, and they're upgraded immediately as new viruses appear.

Beware of BBSs

Large on-line services (CompuServe and America Online, for example) generally screen for viruses and Trojan horses, but that doesn't let you off the hook. Viruses can slip through the safety net, and on small BBSs, they may never be detected. Always treat downloaded files as potentially infected: Scan them with a virus-detection utility before you use them.

On-line services can help you fight viruses, however. MacUser's on-line service, ZiffNet/Mac, includes a library of antiviral utilities in its Download & Support Forum.



Check Your System Software

Apple designed System 7 to make it immune to two of the most bothersome viruses: WDEF and CDEF, which affect the invisible Desktop files. If you're still running System 6 or earlier, your Mac is vulnerable to these infections. System 7 is vulnerable to other viruses.



commercial software product can be a carrier.

The idea of having your computer's files destroyed is frightening, but in fact viruses seldom strike (see the "Suspicious Behavior" sidebar for more-likely culprits when your Mac acts up). Nonetheless, it makes sense to protect your computer from viruses, and if you take precautions such as the ones described below, you can almost guarantee that you'll stay virus-free.

Michele Hasson is a *MacUser* assistant editor.



Protect Your Disks

You can avoid spreading viruses from your hard disk to your application master disks by always *write-protecting* them before they're used. Write-protecting a disk means that it can't be changed, written to, or erased. To write-protect a disk, simply push up the little plastic tab in the upper right corner of the disk so that you can see through the hole. You can protect applications on your hard disk by locking them in the Get Info box (highlight the application's icon and then press Command-I).



Suspicious Behavior

What exactly does a virus do to your Mac? It can produce a strange message — the CODE 252 virus flashed the following message on infected users' screens: "You are infected with a virus. Ha, Ha, Ha. Now erasing all disks. Ha, Ha, Ha." Actually, it didn't erase any files, but it sure scared a lot of people.

Viruses may also delete files for no apparent reason — the recently discovered T4-A and T4-B viruses damage applications and System files by attempting to change the startup code and by overwriting portions of the file with viral code. The most frequent symptom, however, is unexplained bombing or crashing — viruses often hog memory, which then causes your Mac to crash. But if your Mac starts crashing, just remember that viruses are pretty uncommon. Before you panic, try the following methods to discover the real cause:

Run antiviral software regularly.



If your Mac has a virus, you'll probably find and eradicate it this way. You'll also rest easier. Just make sure you have the latest version of the antiviral software installed.

Turn off all extensions and control panels.



You can do this by holding down the Shift key when you restart. If this solves your problem, you may have an extension conflict or a corrupted extension or control panel. Reinstalling new copies of these files may solve the problem.

Reinstall applications.

If an application has been causing problems, it may be corrupted. Try reinstalling it from the original write-protected master disks.

Reinstall system software.

If you're still having problems, it may be that your Mac's System file is corrupted. Try reinstalling the system software from the original write-protected master disks.

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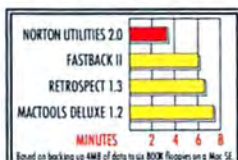
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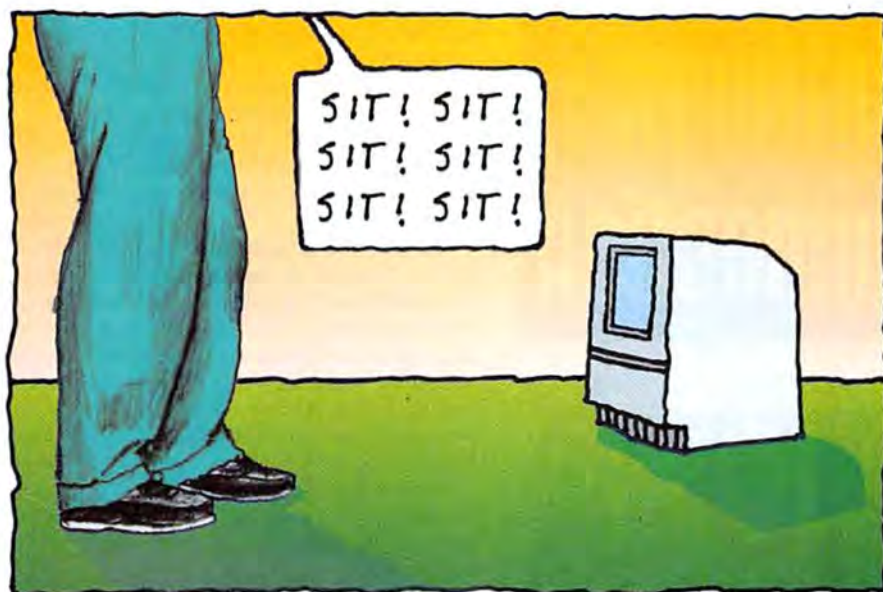
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Can We Talk?

Controlling your computer by voice command isn't a sci-fi fantasy anymore. Voice Navigator lets you do it today, and Apple's Casper technology promises to let you do it better, faster, and more elegantly tomorrow.

By Bob LeVitus



One of my favorite movie scenes is in *Star Trek IV: The Voyage Home*, when Scotty starts talking to the computer and some guy says, "Use the mouse." So Scotty picks up the mouse and talks into it, as if it were a microphone. I'm in love with the concept. I have seen the future of computing, and its name is voice recognition.

Controlling your computer by voice will someday be as commonplace as using a mouse is today. And believe me, you're going to like saying, "Launch PageMaker; new; OK; text tool" a lot better than reaching for the mouse, finding and launching PageMaker, choosing New from the File menu, clicking on the OK button in the Page Setup dialog box, and clicking on the text tool in the tool palette. When it works, voice control is the greatest thing since sliced bread.

Therein lies the rub — today's voice-recognition technology is good, but so far it isn't good enough to use every day. At least it's not good enough for *me* to use every day. Fortunately, it looks like I'll get what I've been waiting for in the next year or two, when Apple introduces its Casper technology. (For a preview of Casper, check out Jon Zilber's column on page 21 of the May '92 issue.)

Talk to Me

I wanted to control my Mac with voice commands so badly that I was the first on my block to get Voice Navigator II (Articulate Systems, 600 W. Cummings Park, Suite 4500,

Woburn, MA 01801; 617-935-5656; \$699), a hardware/software combination that lets you control your Mac with spoken commands.

It had about the highest "wow" factor of any peripheral I'd ever used. Every Mac user who saw mine wanted one. Unfortunately, although it gave good demo, I found that it had four shortcomings that, taken together, were more than I could bear.

First, the software was clumsy and unintuitive. I found myself spending more time debugging scripts and training it to recognize my voice commands than getting work done. I was always tweaking something — changing macros or training (or more often, retraining) it to recognize specific words — which brings us to its next fault.

Second, Voice Navigator II is *speaker-dependent*, which means it can recognize only those words you train it to recognize. And although the training process was relatively painless, I was annoyed by having to train the darn thing every time I wanted it to recognize a new word. Even after training, it often took two or three tries before a command "took."

To make matters worse, its accuracy plummeted if I didn't pronounce the word with the same inflection I used during the training (of course, you can train it to recognize multiple inflections). It also had trouble recognizing words when I happened to have a stuffy nose or my lips were not the right distance from the microphone.

Third, the Voice Navigator II hardware was

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POWER TOOLS BEATING THE SYSTEM

a bit twitchy on my SCSI bus. Unless it was the first device in the SCSI chain, it didn't work.

Last but not least, at \$795 it was too expensive. Articulate Systems has lowered the price to \$699, but that's still too expensive for me.

Articulate Systems isn't resting on its laurels. It recently introduced a lower-priced software-only version of Voice Navigator, known as Voice Navigator SW, which corrects some of Voice Navigator II's shortcomings.

The software has gotten more powerful, and some of the rough edges have been removed. For example, to launch a file, you no longer have to type in a complete pathname, including colons. Although the interface is still clunky, it's better than it used to be. (Note: This improved software is now included with the Voice Navigator II.)

Another plus is that because this is a software-only product, you avoid SCSI problems you might encounter with Voice Navigator II.

It's speaker-dependent, however, so there's still a training cycle for every command you want it to learn. And Voice Navigator SW works only on Macs that have built-in sound digitizers — the LC, LC II, IIsi, Classic II, PowerBooks 140 and 170, and Quadras. If you own any other model, you have to buy the more expensive Voice Navigator II hardware/software combo.

Don't get me wrong; I know several users who love Voice Navigator and can't imagine computing without it. *MacUser's*

executive editor, Rik Myslewski, says he uses his to go into an "editing trance," and senior editor Russ Ito gave it four and a half mice in his September '91 review (see page 48). So even though I find it too tedious for everyday use, many others find Voice Navigator sufficient for their needs.

Tomorrow's Voice

Earlier this year, Apple began tantalizing us by demonstrating its speech-recognition technology, code-named Casper, in several public forums. Casper is a speaker-independent voice-recognition system that doesn't require any training to recognize users' voices. It currently has a vocabulary of more than 100,000 words.

Apple is careful about how it's positioning Casper. ("Casper is a technology demo, not future product plans.") Still, it doesn't take a genius to figure out that we'll someday find Casper's capabilities built in to our Macs.

Casper has three main advantages over existing voice-recognition products. First and foremost, it's speaker-independent, which means Casper will be able to understand anyone who talks to it, regardless of whether the speaker is male or female, has a cold, or speaks rapidly.

Second, Casper will also be able to understand sentences spoken naturally; current technology can understand only single words.

Finally, Casper will contain its own intelligence. It will, for example, understand that the command "Call Mom"

The System 7 File: Improved Drag-and-Drop

System 7's drag-and-drop feature lets you launch applications merely by dragging a file over the icon of the application you want to open it with, but it can quickly litter your desktop with icons of frequently used applications. Here's a workaround: Make a new folder, and store aliases of your favorite applications in it. Set the view to Small Icon so you get more icons into less space. If you don't use this folder too often, put it into the Apple Menu Items folder and open it only when you need it. Thanks to Nate Gasser, who submitted this tip via CompuServe.

Considering that all you have to do to open a file is double-click on it, you may be wondering what all the drag-and-drop fuss is about. Remember that

with drag-and-drop, you can drop a document onto the icon of any application that can open it, not just the one that created it. That can be very handy for opening TeachText files with your favorite word-processing program or opening screen dumps created with Command-Shift-3 in your favorite graphics program.

It's time once again for the Beating the System "hot tip" contest. Submit your favorite System 7 tips, either by mail or by modem, to ZiffNet/Mac's MacUser Forum (please include your name and address). If your tip is used in my upcoming hot-tips article, you'll not only receive notoriety and fame but you'll also get a spiffy (and rare!) "I Beat the System" T-shirt.

means look up mom's phone number and dial it. And because Casper — as system software — will be fully integrated with the Mac and all of its peripherals, it will let you do things such as control other devices with your voice. In one Casper demo, an Apple engineer commanded,

As voice-recognition technology advances, appliance control may become commonplace. Think of how nice it will be to say, "Oven on, four hundred degrees," whenever you hunger for a frozen pizza.

"Program my VCR," and a virtual VCR control panel instantly appeared on-screen. Another voice command, "Record channel 5 tonight from 5 to 7 P.M.," was all it took to program the VCR.

What's It Good For?

My favorite use for voice control is relatively mundane — I like using it to reduce my mouse-dependence when I'm working. For example, I do a lot of page-layout work (I typeset all my books), so I run PageMaker on a 20-inch accelerated SuperMac monitor system. With a large monitor, using the mouse almost always entails moving the cursor from one end of the monitor to the other; with voice control, I keep my fingers on the keyboard, where they should be. There's nothing like using voice commands to switch tools in palettes, change views, and apply styles. Saying "text tool, pointer tool, 200 percent, style, subhead" beats the heck out of reaching for the mouse or even memorizing keyboard shortcuts. When you're concentrating deeply, even these minor things can break your focus.

And, of course, with voice control, standard Mac functions such as cut, copy, paste, scroll, and quit are only a voice command away.

My friend Robert Wiggins uses Voice Navigator II to review CompuServe Navigator sessions from his easy chair (kind of a Navigator navigator). He switches to a large font, sits in a comfortable chair halfway across the room, and reads

through a session's worth of messages by screaming "Next!" or "Previous!" at his Mac.


As the technology advances, you'll be able to do even more. Soon you'll be able to enter data by voice. Just think how easy entering a list of phone numbers will be when all you have to do is say the numbers out loud and watch them appear on-screen. Entering numbers and formulas into a spreadsheet will be a breeze. To create a column of numbers and then add them, you'll just say, "128, next cell, 256, next cell, 384, next cell, sum." The sum, 768, will magically appear in the last cell. How could you not love it?

Appliance control, like the Casper VCR demo I described earlier, may become commonplace too. Think of how nice it will be to say, "Oven on, four hundred degrees," whenever you hunger for a frozen pizza.

And don't forget information retrieval. You'll be able to call your Macintosh on the phone and ask it to read all your new E-mail messages. (Of course, this will require speech synthesis, meaning that your Mac will be able to speak in a "natural" voice — like MacInTalk but better — as well as voice recognition, but that's coming too.)

Taking it a step further, you could ask your Mac, "What's my checking-account balance?" and have it reply, "Negative two hundred twelve dollars and thirty two cents." Or imagine learning a foreign language by saying a word in English and having your Mac translate it into Spanish, type it on-screen, and pronounce it for you at the same time.

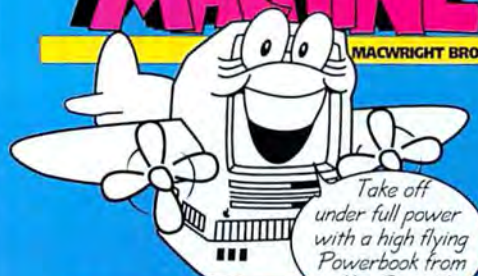
Speech recognition is here today, if you've got the patience for it. Although the Articulate Systems products have their shortcomings, they do work. If you're fascinated by the concept of talking to your Mac and you don't mind investing a bit of time to get it working just right, by all means, check them out.

If you're not that interested or don't want to invest the time or money, wait for Casper. Although nobody will give a timetable, I'd be surprised if we didn't see this technology appear — maybe as a drop-in module (such as QuickTime), maybe as part of a future revision of System 7, maybe built in to the hardware of future Macs — in 1994 or sooner. 

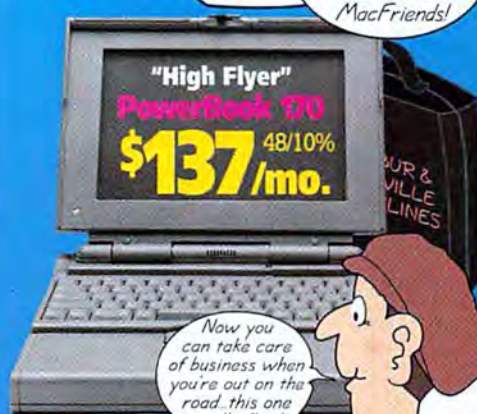
Bob LeVitus is the author of *Dr. Macintosh*, second edition, and *Dr. Macintosh's Guide to the On-line Universe*.

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TECHWORKS





At the August 1987 Macworld Expo in Boston, Apple hit a stand-up triple by previewing HyperCard and two hot new Macs. One was the Mac II, and it was very successful. But the big hit for Apple's bottom line was the SE, thousands of which are still in use in offices and homes. Here's how to get a few more innings from your faithful old SE.

By Don Crabb

Upgrading the Mac SE

With the SE, Apple modernized the compact Macintosh. It came with 1 megabyte of RAM; an 8-megahertz 68000 CPU; a choice of two 800K floppy-disk drives or one floppy drive and one 20-, 40-, or 80-megabyte hard-disk drive; an internal PDS (processor-direct slot) for expansion; and the same I/O ports as those on the Mac Plus. Unfortunately, the fan in early SEs made lots of noise for very little cooling. Your Apple dealer should be able to get you a **replacement fan**, which used to be free but now costs about \$22 plus labor if you don't want to install it yourself.

The next step is to **beef up the RAM**. The logic boards of older SEs must be physically altered to accommodate more memory, but once you've snipped your resistors or pulled your jumpers, you can pop in four 1-megabyte SIMMs to replace the 256K SIMMs currently in the four SIMM slots.

If you want more than 4 megabytes of RAM — not to mention more speed — install either an **Apple SE/30 logic-board upgrade** to replace the existing SE board or a third-party 68030 accelerator board that takes control of the existing 68000 CPU.

The SE/30 logic board gives you a **faster CPU** plus eight SIMM slots that can hold as much as 128 megabytes of RAM (with

Connectix's MODE32 installed). You also get a more efficient board design, newer ROMs, and the ability to add a SuperDrive floppy drive and a color monitor. This solution is not cheap, however: The after-installation cost is about \$1,100. The street price of a Classic II 4/40 is less than \$1,200 and an LC II 4/40 costs around \$1,350, so this upgrade is too pricey.

A more economical solution is to get a **third-party 68030 accelerator upgrade** from such vendors as Applied Engineering, DayStar Digital, Extreme Systems, Fusion Data Systems, MicroMac, NewLife, Novy, or Total Systems. Depending on the speed and features of the board, prices can range from about \$300 to more than \$1,200, but think twice about paying more than \$700. Look for accelerators that have SIMM sockets, so you can add more RAM and if your software requires it, a math coprocessor or FPU (floating-point unit). Some accelerator boards also include full-page- or double-page-display video controllers, so you can add a large-format monochrome monitor.





Finally, don't forget to factor in the cost of **extra RAM** to the cost of the accelerator (at press time that was about \$125 for four 1-megabyte SIMMs or \$475 for four 4-megabyte SIMMs) plus the installation cost, which should be less than \$80 — or free. 

Table 1: Recommended Upgrades for the Mac SE

Upgrade	 Pros	 Cons	 Approximate Cost
Replacement fan	Quieter. Sucks less dirt into machine.	None.	\$22 (plus labor, if needed)
4 megabytes of RAM	Speed. Can use multiple applications and System 7.	None.	\$125
SE/30 logic board	Speed. SE/30 ROMs.	Installation best left to pros. Expensive.	\$1,100
68030 accelerator board	Speed.	Tricky installation. Probably doesn't include new ROMs.	\$300 and up
8 to 128 megabytes of RAM (for SE/30 board or third-party accelerator)	Speed. Can use multiple applications.	Need to have SE/30 logic board or third-party accelerator installed.	\$250 and up
External SCSI hard drive	More storage.	None.	\$400 and up
Total price of minimal upgrades			\$850 and up
Street price of a new Mac Classic II 4/40			\$1,200

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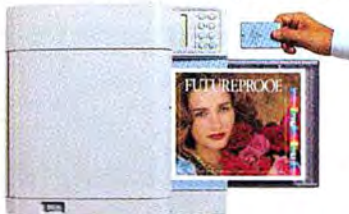
Model: Marie Claude; Photographer: Palma Kolansky; Hair: Leonard Collandre; Make-Up: Lydia Snyder; Jewelry: Jewelers Design Inc., 3rd Avenue, New York. Printed on the Shinko ColorStream/DS Dye Sublimation printer from Mitsubishi International; 12.5 Meg Scan retouched in Photoshop; assembled in Quark Express.

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CIRCLE 210 ON READER SERVICE CARD.



Nobody ever said you had to live in Cupertino to be a Macintosh expert. Know-it-alls are everywhere, from Manhattan to Malibu — even in Waldport, Oregon, where we found our own Mac guru, Philip Russell. Each month Phil shares his own tips plus the best of the 70-odd Macintosh-user-group (MUG) magazines he reads each month. But Phil can't do it alone. To those whose undocumented Mac tip *MacUser* prints, we pay \$25, and the Reader Tip of the Month earns \$100.

 Send your tip, together with your name, address, and phone number, to Tip Sheet, c/o *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. You can also contribute tips electronically via ZiffNet/Mac, the on-line service for *MacUser*. Send them to Gregory Wasson at 72511.36. Be sure to include your full name and mailing address along with the text of the tip.

By Philip Russell

Reader tips compiled by Gregory Wasson

■ You don't have to carry around a printer to print from your PowerBook if it has a fax modem. Dial a fax machine, and let it print out your files.

■ To make an exact copy of a formula in an Excel spreadsheet, create another cell without using absolute references, erase the equal sign at the beginning of the source cell's formula, and then

copy and paste to the new cell. Now put the equal sign back in both the new cell and the source cell.

■ When making overhead transparencies on a LaserWriter, hand-feed the transparencies but *do not* specify manual feed. This method automatically slip-sheets the transparencies with plain paper from your paper tray.

■ If you use more than one mode for one of the older LaserWriters or LaserWriter Pluses, buy a 40-cent knob (part #274-403) from Radio Shack. It fits the mode switch with its clamp and makes it easier to change modes. It's easier than reaching around to the back and fumbling with the tiny mode switch.

■ Serif fonts — the ones, such as New York, Times, and Palatino, with little feet on the letters — are easier to read in blocks of text than are sans serif (footless) fonts such as Helvetica, Geneva, and Avant Garde. A rule of thumb is to use sans serif fonts for headlines and punchy pieces of text and to use serif fonts for body text.

■ ImageWriter platens sometimes get slick and glassy with age. The fix is a container of typewriter-platen-and-type cleaner, which costs less than \$2 a bottle. Get it from a stationery store.

■ The Control key lets you type the Command symbol, a check mark, the Apple symbol, and a diamond by pressing Control-Q, -R, -T, and -S, respectively. You won't see the symbols unless you're using the Chicago font, however. Select Chicago, and press the Control-key combination for the symbol you want. To see what these symbols look like without

typing them, open the KeyCaps DA, select Chicago, and press the Control key.

■ If you need an address-book program, get a structured program that has separate blocks for each field (first name, last name, city, and so on). That way, if you find a better address-book program, you will be able to export your old address book into the new program. Any structured address-book program can import your old fields into its equivalent fields.

■ Do you get a single open-quote mark instead of an apostrophe for a beginning missing letter in phrases such as *go get 'em*? A quick way to get it right is to type the first character, an apostrophe mark, and then the first character of the word again. Now delete the first letter. Like this: Type *e'em*, and then delete the first *e*.

■ Can you move a row in a Word table? Sure can — just select Outline from the View menu in Word 5 (or Outlining from the Document menu in Word 4), and then click and drag the box to the left of the row you want to move. Drag the row to wherever you want it, and then select Normal, which is also on the View menu (Word 4 users should select Outlining again), to return to your table with the row in its new position.

■ To have more than one alias of an item in System 7, always use the original item to make aliases. Aliases made from aliases can lose their connection to the real thing if any alias in a chain is trashed.

■ A tip from Mike Quiner, of Corvallis, Oregon: If your LaserWriter jams cassette-fed paper at the very start of the path (the paper winds around the roller at the back but doesn't go any farther), use alcohol on a cotton swab to clean the three hard rubber rollers you see when you spring the back flap down. There are three more rollers underneath, which you can barely see when you take out the paper tray and spring the back flap down. These should be cleaned too but are hard to reach.

■ Holding down the Command key in a MacDraw Pro dialog box reveals all the keyboard command equivalents for that dialog box.

Reader Tip of the Month: Retrospect

If you've tried backing up with Dantz's Retrospect under System 7, you may have noticed that documents don't always open when you double-click on them and that some files lose their icons on the desktop. Unfortunately, the combination of file sharing and Retrospect can sometimes corrupt desktop files. Rebuilding the desktop fixes the problem, but who wants to rebuild the desktop after every backup? An easier fix is to turn off file sharing in the Sharing Setup

control panel before backing up.

Cory Bridges
Santa Clara, CA

[You can modify the Retrospect \$ All Files selector so that it selects all files for backup except the Desktop DB, Desktop DF, AppleShare PDS, and VM Storage files. For details on how to do this, contact Dantz Development's technical support at 510-849-0372. Retrospect Tech Note No. 18 covers the procedure — Ed.]

Reader Tips

PowerBook

If you open your favorite applications from your PowerBook's hard drive but save your documents to a floppy disk, you can extend the life of the PowerBook's battery charge, because the drive doesn't spin up every time you save a document to a floppy.

If your application has a "Keep Application in Memory" setting, make sure it's turned on.

Shane Trent
Raleigh, NC

Virtual Memory

System 7's virtual memory can be very slow, even with a fast hard-disk drive. Here's how to make it more bearable: Use a disk formatter to create

several partitions on your hard disk. Make one of these partitions large enough to hold the contents of virtual memory and 1 or 2 megabytes more. Then, in the Memory control panel, specify that this partition is where virtual memory is to be stored.

This technique dramatically improves the speed of virtual-memory access, because the drive has to search a smaller physical area of the disk to find the virtual memory.

Justin English
Bloomington, IN

Canvas 3.0

When you are editing objects created with Canvas' Bézier or polygon tools, you can't place a point by typing the x,y coordinates. But there is a workaround:

Select the point (or points)

you want to move, and use the arrow keys to move what you've selected either horizontally or vertically. It will move by only one pixel in the direction of the arrow key each time you press the key, so you can place the point extremely accurately, especially at a highly magnified size such as 16x or 32x.

Philip White
Kodak, TN

Claris Resolve

Here are some tips on how to edit Claris Resolve cell contents from the keyboard: After you've selected the cell to edit, hold down the Option key while selecting one of the arrow keys, and your cursor will jump directly to the entry bar. To move one word at a time, hold down the Option and Command keys while using

the arrow keys. Hold down the Shift key as well to select text instead of merely moving the cursor.

Fred Roberts
Seattle, WA

Finder (System 7)

Sometimes when you decompress a file, its custom icon is replaced by a generic application icon. You can fix this easily enough by rebuilding your desktop (hold down the Command and Option keys as you restart), but I've found a quicker solution:

Open the Get Info window for the file (Command-I), and click on the icon in the upper left corner to select it. Copy the icon, paste it, and then cut it. In most cases, the original icon will then appear.

David G. Perkins
Schaumburg, IL

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 Write to Help Folder, c/o MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Don't want to wait for an answer? Post your question on ZiffNet/Mac, MacUser's on-line service, and get a reply from Bob (76004,2076), Andy (72511,204), or one of the other MacUser experts. See the masthead in this issue for instructions on how to sign up.

By Bob LeVitus and Andy Ihnatko

Bob: Last July, Andy said that he didn't know of anyone who could recycle old floppy disks. Several readers wrote to tell us about Covenant Recycling Services (P.O. Box 2530, Del Mar, CA 92014; 619-792-6975). Not only does Covenant recycle your used floppy disks but it also donates 50 percent of its proceeds

to youth-oriented charities such as Partners for Disabled Youth, The Special Olympics, and the March of Dimes Birth Defects Foundation. If you've got a bunch of old floppies lying around, why not give Covenant a call?

Andy: Of course, if they're perfectly good disks, it's still probably a better idea to donate them to your local school or public library. If not, then better to turn them into cash for the needy than food for the seagulls.

Shady Characters

Q. In the review of Microsoft Word 5.0 in the April '92 issue (page 50), there's something that really bothers me. Whenever I shade bordered text (whether outline or shadow style), the letters themselves are shaded as well. Yet the screen shot in the review shows a portion of bordered text (in shadow format)

with a shaded background and *unshaded* letters. I've tried the customer-support line (which isn't toll-free) and hung up after waiting forever for an answer that never came. Please tell me the secret.

Ferdinand Tiu
Chico, CA

Bob: I consider myself somewhat of an expert on Microsoft Word — I spend at least two or three hours a day with it and usually more. So when I couldn't re-create the screen shot that accompanied the Word 5.0 review, I took it as a personal challenge. After hours of trial and error and several conversations with the reviewer, we realized that it was the version of ATM (Adobe Type Manager) he was using — version 3.0 — that let the outline text display properly. If you use ATM 2.0.3 or don't use ATM at all, the text appears filled in (see Figure 1).

Now before you go off half-cocked and holler at Adobe for forgetting to send you an upgrade notice, ATM 3.0 is available only with Adobe's new Multiple Master fonts — special typefaces that let you generate a wide variety of fonts from one typeface, expanding, condensing, and optically sizing the type any way you like. If you're not using Multiple Master fonts, you don't need version 3.0 and

*... But Were Afraid to Ask

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So we herewith present our smaller, cuter, simpler version of Help Folder. If you have a small, cute, simple question to ask, by all means speed our retirement to the Cayman Islands by sending it on in. To protect you from having a claim on a percentage of our profits, we'll say that your question was sent in by America's favorite chemical additive.

Q. I'm curious about a series of error messages I get at startup. After installing a bunch of new extensions and control panels in System 7, whenever I start up, I get to the Finder and am presented four times with the message "System Extension: This file adds functionality to your Macintosh. To add this file's functionality to your Macintosh, place the file in the Extensions folder and restart the computer." What's wrong?

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Andy: It sounds as though you inadvertently copied four Extensions into the Startup Items folder instead of into the System

Folder. Everything in the Startup Items folder (documents, applications, sounds, doughnuts, whatever) is opened by the Finder after it loads in, and the blurb you mentioned is exactly what you get when you try to open an extension. Move the extensions to their proper places, and that should clear things up. Whenever some wackiness in the Startup procedure takes place after the Finder loads in, check the Startup Items folder.

I still have plenty of room left over to tell you how to make a tactical HUD (heads-up display) for your car, just like the ones in F-16 fighter jets, with nothing but a common word processor and a laser printer. If there's a set of directions you have to refer to on a car trip, type up the info in big bold type (24-point Helvetica Condensed Black works best for me), formatted to print in Landscape mode on one half of a letter-sized page folded lengthwise. When you've finished, print it out with the Flip Horizontal option in the Page Setup dialog box enabled. (If you have a dark-colored car, turn on Invert Image too.) When you fold the sheet in half and toss it onto your dashboard way down toward the windshield, the page will be reflected in the glass, forming a transparent image that hovers wraithlike over your hood. It lets you keep your eyes on the road and makes you feel a little like Tom Cruise.

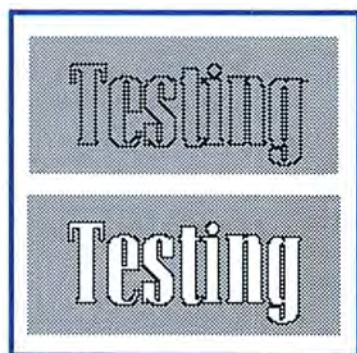


Figure 1: If you shade bordered text in Word 5.0, the letters themselves are shaded as well (above) — unless you have ATM 3.0 installed, in which case the characters remain unshaded (below).

should stick with the current version, 2.0.3.

For what it's worth, the text prints properly on a PostScript laser printer no matter which version of ATM you use. In fact, it prints properly even if you don't use ATM at all.

Attention, KCHR Shoppers

Q. I do a lot of word processing with my PowerBook 140 and also work with spreadsheets. I have to enter a lot of numbers, but I find the PowerBook inconvenient, because it doesn't have a numeric keypad. I understand that there are utilities in the DOS world that let users turn the keyboard into a numeric keypad for entering numbers. Is there anything like that for the PowerBook? If I'm not mistaken, there's a numeric keyboard that can be attached to the PowerBook, but I would prefer not to carry around an extra device just to punch in numbers.

Loyal Nelson
Tokyo
Japan

Andy: Right you are, Loyal. Three companies have come out with numeric keypads for the PowerBook: Kensington has a product called the NoteBook KeyPad, Sophisticated Circuits has the PowerPad, and a Canadian company called Plusware is hawking its Plusware Numeric Keypad. Yes, they're handy and they let you access function keys, but each one costs around

\$140. So let's roll up our sleeves and find another solution — namely: Get a copy of Dave Kreindler's free PowerBook Numeric Keypad keyboard-layout file, available from ZiffNet/Mac (filename PBKEYS.CPT) as well as other on-line services and user groups.

Just pop this file into your System Folder, and you'll be able to switch to a numeric-keyboard layout simply by selecting the file's name in the Keyboard control panel. Dave's keyboard layout is identical to the standard QWERTY layout (a Dvorak version is available too), but when you hold down the Control and Option keys, you get a numeric keypad centered around the K key. All you have to do is remember that the 8 key now gives you =, U is 7, the space bar is 0, and so on.

Keyboard layouts are one of the many niftoids of System 7. They're special files that can be used to redefine the layout of the keyboard in helpful ways (see Figure 2). For example, some people prefer the Dvorak keyboard layout to the standard QWERTY one (they're much the same, except that when you type with the Dvorak layout, you're paid 11 times more money); other folks like to remap the period key so that they get a period even if they're typing in all uppercase letters (so typing things like *R.I.P.* is less of an ordeal). All these effects and many more can be achieved

with custom keyboard layouts.

Creating your own layout is straightforward: Working on a copy of your System file (just in case anything goes wrong), open it with ResEdit and add a new KCHR resource by selecting the KCHR resource and then going to the Resource menu and choosing Create New Resource (or press Command-K). ResEdit presents you with a blank keyboard layout and a map of all the available symbols, which you can then drag onto the keyboard layout like Scrabble tiles. Give the layout a name (in the Resource Info dialog box), save your work, and — once you've replaced your System file with the copy you've just fiddled around with — you're done.

Finally, KCHR resources are yet another ripe avenue for office mayhem. Next time someone brags about his touch-typing skills, you can replace all the vowels in his keyboard layout with *qs*. The effect is especially memorable if he's one of those typists who doesn't look up until he's been typing for half an hour straight.

Similar SIMMs?

Q. I've seen a lot of articles and ads about SIMMs. Is there a difference in quality among

any of the products offered? I've seen ads in which 4-mega-byte, 80-nanosecond SIMMs for a Mac IIx vary in price from \$147 to \$250. Because all these ads are for reputable mail-order firms, it makes me wonder why there is such a discrepancy in price.

Siegmund Stern
Philadelphia, PA

Bob: For the most part, SIMMs (single in-line memory modules) are SIMMs, but there are things to consider in addition to price. If you're installing this kind of RAM yourself, find out whether the SIMMs you're buying come with good installation instructions and what tools you'll need to complete the installation. For those buying RAM for a PowerBook, for example, the special Torx tool needed to open the case can be very hard to find.

Another consideration is technical support. Does the company provide it? And if so, is it any good? Try calling tech support *before* you place your order. Ask the technician a question or two to get a feel for the quality of that vendor's support services. Last but not least, you should consider the warranty and the vendor's reputation.

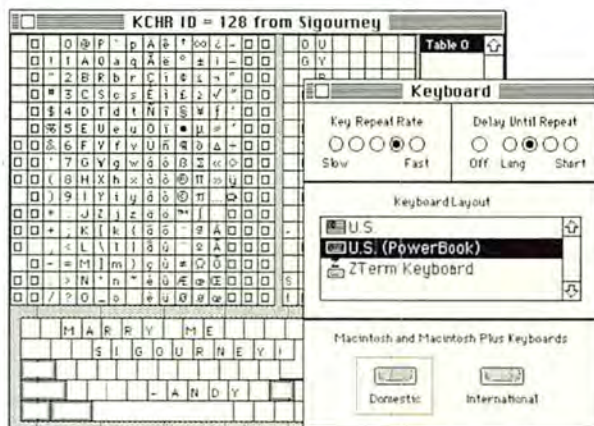


Figure 2: Using ResEdit (background) you can create personalized keyboard layouts. The Keyboard control panel (foreground) lets you choose among any keyboard layouts you've installed in your System Folder.



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Unlimited Undos	Yes	No
Noncontiguous Selection	Yes	No
Rectangular (Vertical) Selection	Yes	No
File Management & Retrieval System	Yes	No
Graphics Layer	Yes	No
SPELL CHECKER:		
Words	135,000	135,000
User Dictionary	Yes	Yes
Skip All	Yes	No
Replace All	Yes	No
Auto Hyphenation	Yes	No
Thesaurus Words	1.4 Million	1.4 Million
FIND/REPLACE FEATURES:		
Find All	Yes	No
Wild Cards	5	1
Font, Size, Style, Color Sensitive	Yes	No
Phonetic Find	Yes	No
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Editable Clipboard	Yes	No
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POWER TOOLS HELP FOLDER

Doing the Defrag

Q. I'm interested in getting a hard-disk optimizer. I was about to buy Norton Utilities for its Speed Disk utility when I read ALSoft's "Peter Norton Won't Like This Ad" ad for DiskExpress II. The ad had a side-by-side comparison of DiskExpress II, Speed Disk, and MacTools' defragmenter and seemed to suggest (of course) that DiskExpress would totally blow away the other two in terms of how long it took to defragment a disk and how fast the disk performed afterward. Is DiskExpress II really the best?

Megan Oberlatt

Tewksbury, MA

Andy: Peter Norton won't like this answer, and I don't think ALSoft will be too keen on it either. The thing is, I think disk optimizers are a waste of time. For the uninformed, an optimizer (or defragmenter) is a disk utility that purports to speed up your hard drive by putting as many apps and docs as possible in single uninterrupted blocks. See, on a freshly formatted hard disk, all the free space exists in one long, uninterrupted stretch of empty real estate. As the months go by, however, and you install and delete files, your hard disk becomes a cratered landscape of occupied and free blocks. You may have 20 megabytes of free space, but if you were to look at where all that free space actually, physically is on the disk, you'd see it's a megabyte here, another 2 megabytes over there, and maybe a whole slew of 400K patches hither and yon. When you then install a 6-megabyte application, it doesn't go splat into one tidy section of the disk but is chopped up to fit into whatever patches of the disk are currently available. As you might guess, an application can be read off the disk more quickly when it's in one big block than when it's scattered

around in tiny pieces. A disk optimizer takes your whole hard disk apart, file by file, and rebuilds it so that as many of the files as possible sit in continuous, uninterrupted, ever-so-quick-to-access blocks of hard-disk space.

Me, I don't like optimizers at all. As has been thoroughly proven in many sci-fi flicks featuring teleporters, humans, and insects, absolutely miserable results are possible if something goes wrong before or during the putting-everything-back-together stage. Granted, every optimizer makes a big point about its safety features and all the manuals strongly stress the absolute need to do a complete backup before optimizing, but it still seems like a lot to go through — especially when you consider the results.

I tested the fastest optimizer of the three you mentioned on an 85-megabyte drive that hadn't been reformatted in five years, and it sped things up by only about 8 percent. Optimizing is useful if you have a truly Godzilla-like database sitting on a volume with heavy file traffic, but for most folks, optimizing won't significantly improve performance.

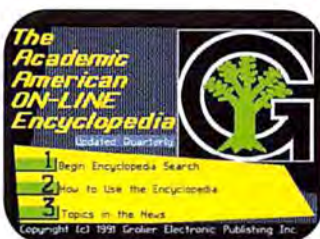
By the way, you can defragment your disk manually. Just do a complete backup, reformat your hard disk, and then copy your files back onto it. The most-often-used stuff goes on first, to seize as much uninterrupted real estate as possible. This way, you get performance about as good as that a commercial utility gives you (although with disgustingly greater effort), and you also get the opportunity to rethink the ways you organize your data. Every time I do this, I use a better disk formatter, decide whether I should change the number and sizes of my partitions, reorganize my folders, and so on. I also take the opportunity to reinstall my system software from

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POWER TOOLS HELP FOLDER

scratch, thus quashing any nastiness the old copy might have picked up.

It's a good method, and I like it. If you're still interested in using an optimizer, my advice is, truly, take your pick. In my thoroughly unscientific (but nonetheless pretty sound) tests at a college computer lab, DiskExpress II optimized in the shortest time but it tied with Speed Disk in the category of increased speed. So there's no real standout. DiskExpress does have a slight advantage in that it has many more features — among them the ability to actively track which apps and files are used most often, for more-intelligent optimization — but off-hand, I'd say choose based on which of the package's other features you prefer. Speed Disk comes as part of the mondo-useful Norton Utilities, whereas DiskExpress is available either alone (to save you a few bucks) or as part of ALSoft's Power Utilities, which comes with font and sound manager MasterJuggler, a good no-nonsense screen saver, and other trinkets.

Easy Access

Q. What the heck are Easy Access and Responder? I see these icons on my startup screen but can't find any explanation for them.

Steve Kimball
Houston, TX

Bob: Easy Access is an extension from Apple that provides two features — Sticky Keys and Mouse Keys. Both are aimed at people who have difficulty typing with both hands or manipulating the mouse. Sticky Keys lets you type combination keystrokes consisting of a modifier key (Shift, Command, Option, or Control) and another key but without having to press the keys simultaneously. To use Sticky Keys, press the Shift key five times without moving the mouse and then press

the key combination you want to use. Pressing a modifier key one time sets it; pressing it twice locks it. To turn Sticky Keys off, press the Shift key five more times without moving the mouse.

Mouse Keys lets you bypass the mouse and move the cursor and click and drag, using the numeric keypad on the right side of the extended keyboard. To turn Mouse Keys on, press Command-Shift-Clear. The 1, 2, 3, 4, 6, 7, 8, and 9 keys move the cursor, and the 5 key serves as the mouse button — press it once to click and twice to double-click. To turn Mouse Keys off, press Command-Shift-Clear again.

Easy Access doesn't use much RAM and rarely causes problems, but if it bothers you, trash it. If you decide that you want it back, reinstall it from the appropriate system disk.

Responder is an extension that's used by network administrators to gather information about networked Macs. Ask your network administrator if you need it. If you're not on a network, you don't need it — go ahead and trash it.

Andy: Easy Access is one of those wicked-neat extensions that helps even those who don't physically need it. For one, it gives every application the equivalent of a "nudge" command. If you need to move a graphic element exactly one pixel straight up, just turn Easy Access on and press the up arrow once. Much easier than trying to squeeze fine motor control out of your mousing hand, especially if you ingest as much caffeine and sugar as I do. Second, Easy Access protects you from system errors that freeze your mouse. If the keyboard's still active, Easy Access will leave you with enough fundamental faux-mousing ability to calmly and politely save your work, quit your applications, and restart your Mac. ☺

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PRODUCT INDEX

ADVERTISER	PAGE
Database Management	
Claris Corporation 800-3CLARIS	22-23
Helix Technologies 800-364-4359	17-19
Display Systems & Video	
Envisio 612-339-1008	B627
Express Direct 800-535-3252	298-299
Lapis Technologies 800-43-LAPIS	B662
MacNews 800-243-9383	309
Mobius Technologies, Inc. 800-523-7933	7
NEC Technologies 800-NEC-INFO	Covers 5-8
Radius, Inc. 800-227-2795	B637
RasterOps 800-SAY-COLOR	243
Education	
Berlitz Publishing International 800-726-5087	312
Educational Resources 800-624-2926	323
MacAcademy 800-527-1914	B673
General Hardware & Accessories	
Hardware That Fits 800-364-LESS	190-201
Kensington 800-535-4242	254
Moustrak 800-221-6687	B677
Outbound Systems, Inc. 800-444-4607	237
PrePress Direct 800-443-6600	B667
Verbatim Corporation 704-547-6500	82
Zeos International Ltd. 800-824-5555	259-261
Graphics & Design	
Adobe Systems, Inc. 800-833-6687	B641
AGFA Div. - Type 800-424-TYPE	B621
Aldus Corporation 800-685-4181	B625
Aldus Corporation 800-685-4161	B665
Aldus Corporation 800-685-4165	B680-81
Banner Blue Software 510-794-6850	258
Claris Corporation 800-3CLARIS	11
Deneba Software 305-596-5644	15
Eastman Kodak Co. 800-242-2424 ext. 53	B614-15
Frame Technology 800-U4-FRAME ext. 224	B613
GraphSoft 410-461-9488	42
Image Club Graphics Inc. 800-661-9410	238
Multi-Ad Services, Inc. 800-447-1950 ext. 355	B661
Passport Designs 800-443-3210	207
Pixar 800-888-9856	B659
Ray Dream, Inc. 415-960-0768	32
Specular International 413-549-7600	26
Strata, Inc. 800-678-7282	B661
Input Devices	
MLI 800-777-6144	21
Science Accessories 203-386-9978	312
Mail Order	
Advance Business Center 800-274-7747	297
Bottom Line Distribution 900-420-3737	320-321
CallSoft 800-777-5014	319
Diskette Connection 800-654-4058	312
Dr. Mac 800-825-6227	322
First Source International 800-535-5892	300
Hard Drives International 800-998-8024	289
La Cie Limited 800-999-1169	301-308
Mac Depot 800-222-2808	334-335
Mac & More 800-945-1MAC	328
Mac Zone, The 800-248-0800	34-41
Mac's Place 800-367-4222	313-318
MacCenter 800-950-3726	331-333
MacConnection 800-800-4444	64-71
MacDirect 800-621-8469	89-90
MacFRIENDS 800-331-1322	80, 224, 273, 281
MacLand 800-333-3353	328-329
MacProducts, USA 800-622-3475	310-311
MacTown 800-338-4273	300
MacWarehouse 800-255-6227	244-249
Mirror Technologies 800-643-0624	213-215
Third Wave Computing 800-448-0404	290-291
USA Rex 800-398-3539	292
Networking & Connectivity	
Asanté Technologies 800-662-9686	24
Dayna 801-531-0600 ext. 351	218
Farallon 800-995-7760	220
Insignia Solutions 800-848-7677	74
Organizational Tools	
Advanced Software 800-346-5392	4
AEC Software 800-346-9413	6

ADVERTISER	PAGE
Claris Corporation 800-3CLARIS	33, 45
Kaelron Software Corporation 713-890-3434	83
Mainstay 818-991-6540	87
Micro Planning International 800-852-PLAN	14
Official Airline Guides 800-342-5624	227-229
Paste! Development 212-941-7500	83
Output Devices	
Canon U.S.A. 800-OK-CANON	B623
CoStar 800-4-COSTAR	B639
Datapoints Corporation 800-334-3174	46-47, 52
GCC Technologies 800-422-7777	223, 225
General Parametrics 800-223-0999	B657
LaserMaster Corporation 800-950-6868	B629
Lexmark 800-358-5835	8-9
Mitsubishi International Corporation 914-997-4999	276
NEC Technologies 800-NEC-INFO	B62-3
Orange Micro 714-779-2784	10
QMS, Inc. 800-422-2769	27-29
Tektronix 800-835-6100 Dept. 25A	B671
Texas Instruments 800-527-3500	232-233
XANTE Corporation 800-926-8839	B67, B69
Xerox Corporation 800-TEAM-XRX ext. 702	57
Performance Enhancers	
DayStar Digital 800-962-2077	B683
TechWorks 800-934-2471	274
Resources	
AGFA Div. 800-395-7007	B661
CompuServe 800-848-8199	251
Scanners	
AGFA Div. - Scanner 800-685-4271	76, 77
Ken Hansen Imaging 212-673-7536	B659
Santos Technology Inc. 800-966-9960	B655
UMAX Technologies 800-562-0311	B645
Spreadsheets & Numerical Analysis	
Delta Point, Inc. 800-446-6955 ext. 105	264
Lotus 800-TRADEUP ext. 7044	48
Lotus 800-448-2500	189
Microsoft	Covers 2-4, 1
Storage Systems	
3M Data Storage Products 800-328-9438	B643
APS Technologies 800-235-2750	285-287
ClubMac 800-854-6227	324-325
dgr Technologies, Inc. 800-235-9748	330
Direct Tech 800-279-5520	288
ETC Peripherals 800-876-4ETC	327
FWB, Inc. 415-474-8055	78
Mass Microsystems 800-522-7979	5
Microtech International, Inc. 800-325-1895	231
Mirror Technologies 800-643-0624	213-215
O.C.E.A.N. Microsystems 800-944-6232	288
Panasonic 800-742-8086	203
PLI 800-288-8754	84, B684
Telecommunications	
Global Village Communication 415-390-8200	258-257
National Videotex 800-336-9096	283
Supra 800-944-8772	205
Utilities	
ALSoft, Inc. 713-353-4090	226
CE Software 800-523-7638	88
Central Point Software	266
Connectix Corporation 800-950-5880	12
Dantz Development Corp. 510-849-0293	250
Dubl-Click 800-266-9525	16
Fifth Generation Systems, Inc. 800-666-2904	30, B675, 208-209
GDT Softworks Inc. 800-663-6222	20
Insignia Solutions 800-848-7677	234
Kent Marsh Ltd. 800-325-3587	230
Maxa Corporation 800-788-6292	263
Microcom, Inc. 919-490-1277	262
Now Software 800-237-4611	252-253
Symantec 800-343-4714 ext. 754-F	270
Symantec 800-343-4714 ext. 606-G	44
Thought! I Could Company (Wallpaper) 212-673-9724	B677
Word Processing	
Caere Corporation 800-535-SCAN	240
ExpriVision 800-732-3897	B631
Nisus Software, Inc. 619-481-1477 ext. 82	282

BG denotes 1992 MacUser DTP Buyer's Guide

AD INDEX

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RS#	ADVERTISER	PAGE
248	3M Data Storage Products	BG43
67	Adobe Systems, Inc.	BG41
176	Advance Business Center	297
200	Advanced Software	4
100	AEC Software	6
223	AGFA Div. - Scanner	76
194	AGFA Div. - Scanner	77
222	AGFA Div. - Type	BG21
N/A	AGFA Div.	BG61
N/A	Aldus Corporation	BG25
N/A	Aldus Corporation	BG65
N/A	Aldus Corporation	BG80-81
171	ALSoft, Inc.	226
146	APS Technologies	285-287
81	Asanté Technologies	24
17	Banner Blue Software	258
158	Berlitz Publishing International	312
N/A	Bottom Line Distribution	320-321
30	Caere Corporation	240
214	CallSoft	319
20	Canon U.S.A.	BG23
72	CE Software	88
154	Central Point Software	266
N/A	Claris Corporation	11
N/A	Claris Corporation	22-23
N/A	Claris Corporation	33
N/A	Claris Corporation	45
46	ClubMac	324-325
23	Cobb Group, The	278
120	CompuServe	251
61	Connectix Corporation	12
88	CoStar	BG39
28	Dantz Development Corp.	250
117	Dataproducts Corporation	46-47
116	Dataproducts Corporation	52
133	Dayna	218
159	DayStar Digital	BG83
43	Delta Point, Inc.	264
186	Deneba Software	15
242	dgr Technologies, Inc.	330
33	Direct Tech	288
122	Diskette Connection	312
39	Dr. Mac	322
90	Dubl-Click	16
69	Eastman Kodak, Co.	BG14-15
112	Educational Resources	323
70	Envisio	BG27
56	ETC Peripherals	327
180	Expervision	BG31
128	Express Direct	298-299
177	Farallon	220
107	Fifth Generation Systems	30
106	Fifth Generation Systems	BG75
108	Fifth Generation Systems	208-209
64	First Source International	300
126	Frame Technology	BG13
84	FWB, Inc.	78
163	GCC Technologies	223
164	GCC Technologies	225
18	GDT Softworks Inc.	20
79	General Parametrics	BG57
244	Global Village	256-257
208	GraphSoft	42
N/A	Hard Drives International	289
199	Hardware That Fits	190-201
201	Helix Technologies	17-19
89	Image Club Graphics Inc.	238
155	Insignia Solutions	74
153	Insignia Solutions	234
98	Kaetron Software Corporation	83
121	Ken Hansen Imaging	BG59
130	Kensington	254
36	Kent Marsh Ltd.	230
N/A	La Cie Limited	301-308
124	Lapis Technologies	BG62

RS#	ADVERTISER	PAGE
178	LaserMaster Corporation	BG29
N/A	Lexmark	8-9
N/A	Lotus	48
N/A	Lotus	189
53	Mac Depot	334-335
41	Mac & More	326
N/A	Mac Zone, The	34-41
167	Mac's Place	313-318
83	MacAcademy	BG73
1	MacCenter	331-333
N/A	MacConnection	64-71
N/A	MacDirect	89-90
N/A	MacFRIENDS	80
N/A	MacFRIENDS	224
N/A	MacFRIENDS	273
N/A	MacFRIENDS	281
150	MacLand	328-329
47	MacNews	309
137	MacProducts, USA	310-311
237	MacTown	300
156	MacWarehouse	244-249
76	Mainstay	87
207	Mass Microsystems	5
239	Maxa Corporation	263
123	Micro Planning International	14
75	Microcom, Inc.	262
N/A	Microsoft	Covers 2-4, 1
160	Microtech International, Inc.	231
118	Mirror Technologies	213-215
210	Mitsubishi International Corp.	276
149	MLI	21
174	Mobius Technologies, Inc.	7
125	Moustrak	BG77
85	Multi-Ad Services, Inc.	BG61
240	National Videotex	283
204	NEC Technologies	BG2-3
213	NEC Technologies	Covers 5-7
202	NEC Technologies	Cover 8
N/A	Nisus Software, Inc.	282
170	Now Software	252-253
205	O.C.E.A.N. Microsystems	288
165	Official Airline Guides	227-229
35	Orange Micro	10
78	Outbound Systems, Inc.	237
131	Panasonic	203
233	Passport Designs	207
82	Pastel Development	83
218	Pixar	BG69
183	PLI	84
182	PLI	BG84
228	PrePress Direct	BG67
50	QMS, Inc.	27-29
N/A	Radius, Inc.	BG37
N/A	RasterOps	243
73	Ray Dream, Inc.	32
142	Santos Technology Inc.	BG55
132	Science Accessories	312
86	Specular International	26
135	Strata, Inc.	BG61
87	Supra	205
N/A	Symantec	44
N/A	Symantec	270
105	TechWorks	274
38	Tektronix	BG71
168	Texas Instruments	232-233
101	Third Wave Computing	290-291
21	Thought I Could	BG77
145	UMAX Technologies	BG45
245	USA Flex	292
162	Verbatim Corporation	82
225	XANTE Corporation	BG7
224	XANTE Corporation	BG9
246	Xerox Corporation	57
220	Zeos International Ltd.	259-261

BG denotes 1992 MacUser DTP Buyer's Guide

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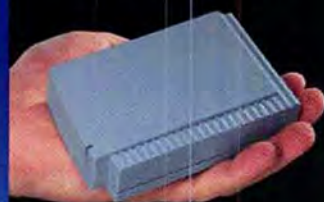
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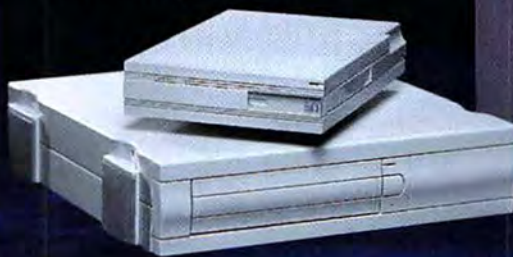
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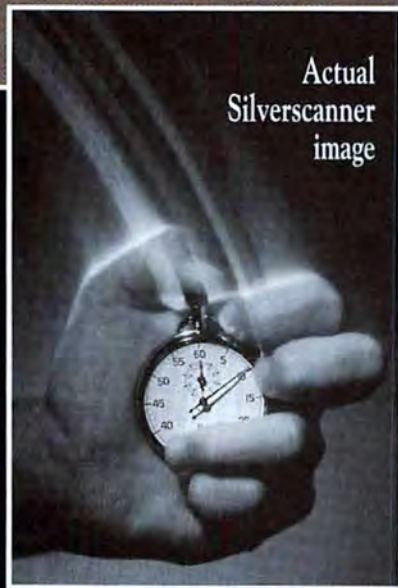
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It's a photo



Actual Silverscanner image

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1200 dpi at 100%

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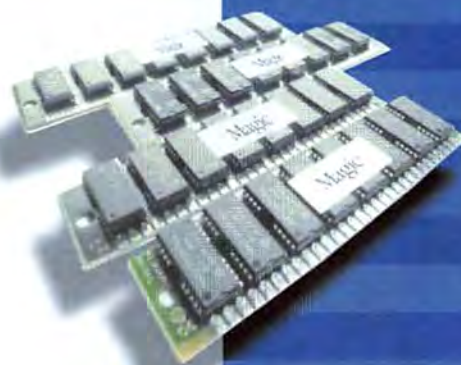
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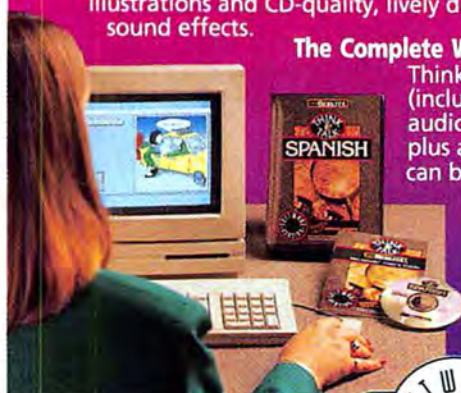
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Optimum Resource	
4877 Stickybear's Reading Rm.	34
Software Toolworks	
2202 Mavis Beacon	32
The Voyager Company	
4862 A Silly Noisy House CD	38

ENTERTAINMENT

Delta Tao Software	
4057 Spaceward Ho! 2.0	35
2691 Strategic Conquest 3.0	35
DigiTek Software	
4250 Hole-In-One Golf	24

Electronic Arts	
3496 PGA Tour Golf	37
Inline Design	
3493 3 in Three	31
ISM, Inc.	
4326 Surgeon 3. The Brain	32
Microsoft	
3532 Flight Simulator 4.0	39
Reactor Inc.	
5100 Spaceship Warlock	62
Soft Wars	
4528 Full Metal Mac	26
Strategic Studies Group	
3933 Warlords	38
Triad Publishing, LTD	
4578 Lottery Tracker & Wheeler	29
Velocity	
3536 Spectre	38
Virgin Games	
4001 Monopoly	31
4428 RISK	31
4000 Scrabble Deluxe	31

HARDWARE

Applied Engineering	
4046 Plus Drive	308
3681 QuickSilver IISI	236
Asanté	
Ethernet Hubs	
4095 10 Hub/8	258
3445 10 Hub/12	528
Ethernet Cards-NuBus	
3705 MacCon3 NB	238
Ethernet Cards-IISI & SE/30	
3071 MacCon+ 30iET	198
PowerBook SCSI Adapters	
4093 EN/SC	368
SCSI Adapters	
4092 EN/SC-10T	258
Artix Technologies	
4853 Tamarack 8000C	1542
Dayna Communications	
4955 Network Mgmt. System/778	
LocalTalk to Ethernet Adapters	
3038 EtherPrint-T	338
DayStar Digital	
4271 ComboCache IISI-FPU	328
4276 Equalizer LC w/FPU	258
4982 FastCache Quadra	268
PowerCache Accelerators	
3740 40MHz	798
3743 40MHz w/FPU	968
3741 50MHz	1148
3744 50MHz w/FPU	1398
E-Machines	
Color Displays	
4018 ColorPage T16-II	1362
Farallon	
PhoneNET	
1557 Connectors DIN-8	29
Global Village	
PowerPort	
4815 Bronze 2400	218
4814 Silver 9600	438
4813 Gold v.32bis	588
Lapis Technologies Inc.	
DisplayServer Video Cards	
4720 II Dual Page	168
4716 II Full Page	178
4721 LC Dual Page	168
4745 ColorServer II-21	418
Monitors	
4700 Dual Page - Mono	738
4699 Full Page - Greyscale	578
4698 Full Page Monochrome	458
Microtek	
3824 ScanMaker 6002S	1398
NewLife Computer Corp.	
4521 Classic Accelerator	489
4520 Classic Accelerator w/FPU	568
PCON	
2874 Hyper-Net Din 8	15

Radius	
Accelerators	
4778 Rocket 25MHz	1612
4779 Rocket 33MHz	2158
Monitors	
4783 Color Pivot	1368
Video Cards	
4803 Color Pivot II Interface	518
4794 PrecisionColor 24XP	518
4791 PrecisionColor BXJ	518
RasterOps	
Video & Multimedia	
3181 24STV	828
Seiko	
3826 CM 1445 14" Trinitron	598
Shiva	
4452 LanRover/L	598
2179 Ethergate	1289
SIMM	
PowerBook Memory 140/170	
3965 6-MB Pseudo-Static	298
Single Inline Memory Modules	
3179 1-MB 80ns	32
3701 2-MB 70ns	65
2738 SIMM 4-MB 80ns	120
2770 SIMM FX 4-MB 80ns	138
4754 16-MB High Profile	598
4755 16-MB Low Profile	648
Video RAM for LC, Quadra	
4337 256K	37
4338 512K	59
Sigma Designs	
15" Power Portrait Monochrome	
4443 Platinum	828
SuperMac	
5011 ThunderStorm	898
24 Bit Display Cards	
4138 Spectrum/24 Series III	898
4156 Spectrum/8+24 PQQ	898
Monochrome/Greyscale Monitors	
4169 Plat. 21" 2-Page	1138
SuperMatch Color Monitors	
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Video Capture/Multimedia	
4149 Spigot & Sound Pro NB	1698
4147 VideoSpigot Pro si	1348
Supra Corp.	
Supra FaxModem	
3931 Plus MacPac	178
4016 V.32 MacPac	328
4017 V.32bis MacPac	378
Thunderware	
3653 LightningScan Pro 256	489
Wacom	
12X12 Digitizers w/Cordless Stylus	
3031 Electro Static Firm	836
3032 Electro Static Soft	836
3030 Standard Firm	758
3029 Standard Soft	758
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4065 240-MB 12ms	738
Syquest	
2269 44-MB Cartridges	69
3458 88-MB Cartridges	107

PROGRAMMING

Bowers Development	
4099 AppMaker 1.5	214
Pluma Software	
4770 Cause 3.0	189
5015 Net Effect	186
Symantec	
3524 THINK C 5.0	198
3584 THINK Pascal 4.0	159
3393 THINK Reference	69
TGS Systems	
3616 Prograph V2.5	298
UserLand Software	
4211 Frontier 1.0	189

BOOKS

Addison Wesley	
Inside Macintosh	
4893 Files	22
4896 Imaging	22
4892 Mac Toolbox Essentials	26
4895 Memory	18
4891 Overview	15
4894 Processes	17
Peachpit Press	
4985 Mac Bible 4th Ed	19
Voyager Company	
4897 Complete Hitch Hikers	15

UTILITIES

Berkeley Systems	
1232 After Dark 2.0	29
3523 After Dark & M.A.D. Bun.	39
Casady & Greene	
4976 Super QuickDex	58
CE Software	
3388 QuickKeys 2.1	89
Connectix	
4861 CPU Connectix PB Util	48
Fifth Generation	
4696 Suitcase V2.1	49
Insignia Solutions	
Soft PC	
3833 Universal V2.5	194
3834 AT V2.5	298
Leader Technologies	
5010 PowerMerge	79
Metacore/Discovery Systems	
World Almanac & Bk of Facts/92	49
MicroMat	
4417 MacEKG 2.0	98
NoHands Software	
4491 Magnet	88
Nova Development	
Kaboom!	28
Now Software	
5017 Now Utilities V 4.0	98
Quantum Leap	
4100 Giga-ROM 2.0-Super Libr.	98
4871 CD-7 Sys 7 Super CD	74
Sabastian Software	
4033 Image Grabber 3.0	35
Salient	
4049 AutoDoublor	48
2581 DiskDoublor	48
Soft Writers	
4642 Disk•Go	45
STF Technologies, Inc.	
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Teknosys	
4086 Help!	89

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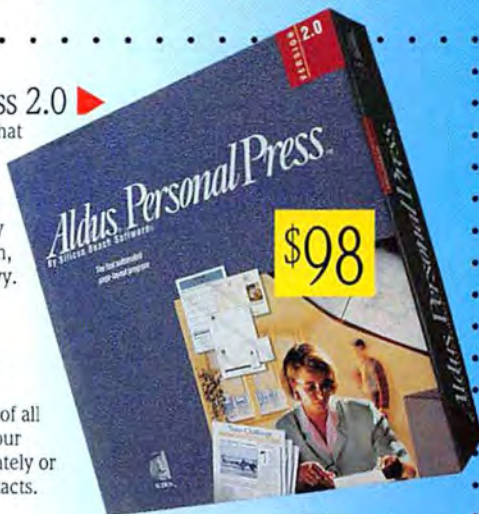
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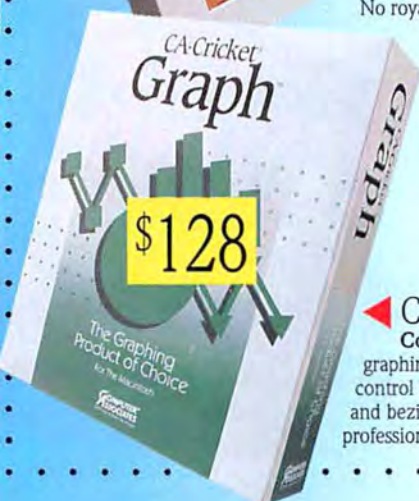
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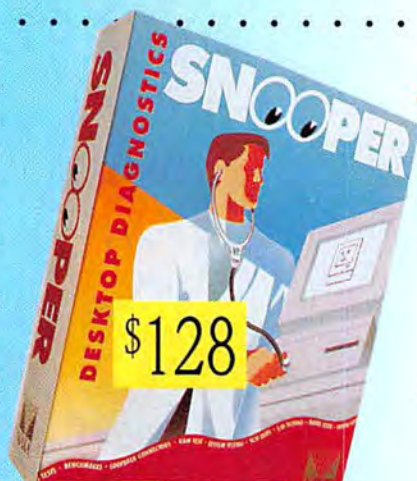
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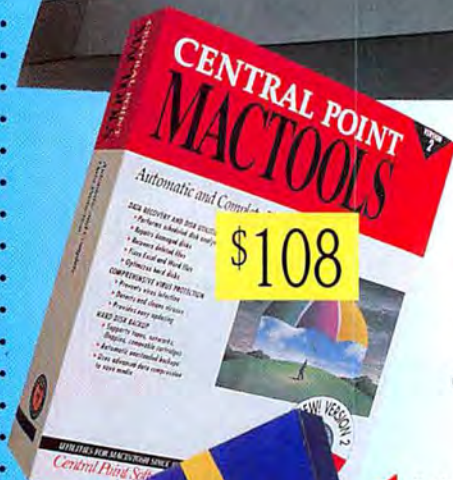
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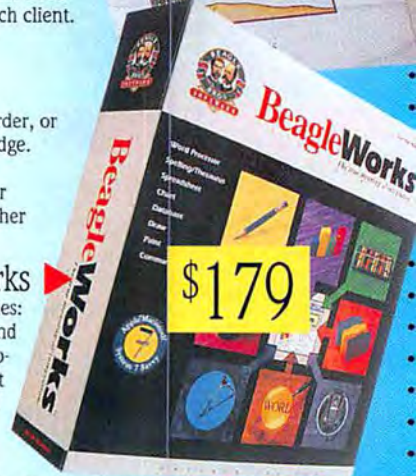
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	Baseline Database v1.5.....61
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	Quesoft RightWriter v3.2.....53
	Reference Grammar Mac v2.0.....55
	T/maker WriteNow v3.0 w/Grammatic.....149
	WordPerfect 2.1 (Special).....259
Utilities	Aladdin Soft Deluxe v2.0.....104
	Apple Macintosh PC Exchange.....67
	Apple Sys 7 Personal Upgrade Kit.....69
	AppleTalk Remote Access (Special).....195
	Berkley More After Dark v1.0.....23
	Berkley Sys. After Dark 2.0 (Special).....27
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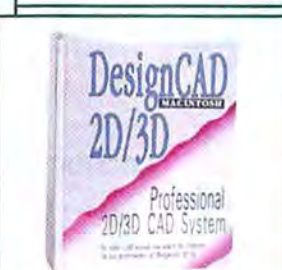


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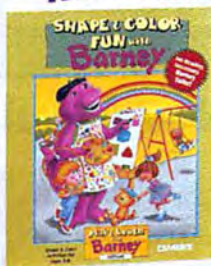
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SyQuest Drives feature: Industry standard half-height 5.25" form factor • 20 ms average seek time
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Quantum

Unformatted Capacity	Model	Product Description	Actual MAC Capacity	Internal	External
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52mb	LPS50	3.5" Low Profile	9ms	49mb	\$215 \$275
80mb	ELS42	2.5" Low Profile	9ms	80mb	\$419 \$519
85mb	ELS85	3.5" Low Profile	17ms	82mb	\$275 \$335
105mb	LPS105	3.5" Low Profile	9ms	100mb	\$335 \$395
120mb	LPS120	3.5" Low Profile	10ms	116mb	\$409 \$469
120mb	ELS120	2.5" Low Profile	9ms	120mb	\$529 \$629
127mb	ELS127	3.5" Low Profile	19ms	124mb	\$339 \$399
170mb	ELS170	3.5" Low Profile	19ms	160mb	\$429 \$489
240mb	LPS240	3.5" Low Profile	10ms	234mb	\$649 \$709
425mb	PRO425	3.5" Half Height	8ms	406mb	\$899 \$959

ELS drives have 32K cache, low power consumption, MTBF of 250,000 hrs and TWO Year Warranty. LPS drives have 64K - 256K cache, MTBF of 250,000 hrs, and TWO Year Warranty. PRO drives have 256K cache, MTBF of 150,000 hrs, and TWO Year Warranty. GoDrives have 32K cache, low power consumption, MTBF of 150,000 hrs, and ONE Year Warranty.

**5 YEAR
WARRANTY**

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Unformatted Capacity	Model	Product Description		Actual MAC Capacity	Internal	External
330mb	M2622SA	3.5" Half Height	9ms	314mb	\$1079	\$1139
425mb	M2623SA	3.5" Half Height	9ms	405mb	\$969	\$1029
520mb	M2624SA	3.5" Half Height	9ms	496mb	\$1189	\$1249
645mb	M2263	5.25" Full Height	16ms	640mb	\$1259	\$1359
1.2GIG	M2266	5.25" Full Height	14.5ms	1029mb	\$1729	\$1829
2.0GIG	M2652SA	5.25" Full Height	11ms	1665mb	\$2899	\$2999

Fujitsu 3.5" high performance SCSI disk drives features:
• 10MB/s data transfer rate • 6.82 ms average latency • 240 KB read-ahead cache buffer
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• Embedded SCSI interface • As fast as 14.5 ms positioning time • Up to 4.8 MB/sec SCSI data transfer rate

Seagate

Unformatted Capacity	Model	Product Description			Actual MAC Capacity	Internal	External
248mb	ST3283	3.5" Low Profile	12ms	235mb	\$659	\$719	
420mb	ST1480N	3.5" Half Height	14ms	406mb	\$1059	\$1119	
525mb	ST1581N	3.5" Half Height	14ms	500mb	\$1198	\$1258	
1.2GIG	ST11200N	3.5" Half Height	10.5ms	1000mb	\$2119	\$2179	
320mb	ST4385N	5.25" Full Ht W-R	10.7ms	315mb	\$1249	\$1349	
645mb	ST4766N	5.25" Full Ht W-6	15.5ms	632mb	\$1285	\$1385	
645mb	ST4767N	5.25" Full Ht W-R II	11.9ms	634mb	\$1549	\$1649	
1.2GIG	ST41200N	5.25" Full Ht W-7	15ms	989mb	\$1729	\$1829	
1.6GIG	ST41651N	5.25" Full Ht W-8	15ms	1350mb	\$2099	\$2199	
2.1GIG	ST42100N	5.25" Full Ht W-9	12.9	1900mb	\$2949	\$3049	
1.6GIG	ST41600N	5.25" Full Ht Elite-1	11.5ms	1307mb	\$2399	\$2499	
2.4GIG	ST42400N	5.25" Full Ht Elite-2	11ms	2050mb	\$3299	\$3399	
3.4GIG	ST43400N	5.25" Full Ht Elite-3	11ms	2750mb	\$4999	\$5099	

Seagate Drives include a ONE Year Warranty.

Maxtor®

Unformatted Capacity	Model	Product Description		Actual MAC Capacity	Internal	External
120mb	7120XT	3.5" Low Profile	15ms	121mb	\$349	\$409
207mb	7213	3.5" Low Profile	15ms	202mb	\$Call	\$Call
330mb	LXT-340	3.5" Half Height	15ms	324mb	\$839	\$899
535mb	LXT-535	3.5" Low Profile	12ms	510mb	\$1219	\$1279
645mb	XT-8760S	5.25" Full Height	16.5ms	639mb	\$1349*	\$1449
1.2GiG	PO-12S	5.25" Full Height	13ms	997mb	\$1729*	\$1829
1.7GiG	PO-17S	5.25" Full Height	13ms	1433mb	\$2199*	\$2299

Maxtor 3.5" Disk Drives include a ONE Year Warranty. Maxtor 5.25" Disk Drives include a TWO Year Warranty. * Internal Full Height Drives fit the Mac II, IIfx, and Quadra 900 only.

Tape Backup Systems

Capacity	Model	Description	Media	Access Time	External
155mb	Teac MT2ST/N50	Analog	CT600N	5-7 MB/s	\$489
600mb	Teac MT2ST/F50	Analog	CT600F	7-10MB/s	\$699
2.0GIG	WangDAT 1300XL	DAT, DDS	4mm	10-15 MB/s	\$1329
3-5GIG	WangDAT 3200	DAT, DDS-DC	4mm	10-15 MB/s	\$1549
2.0GIG	HP 35470A	DAT, DDS	4mm	10-15 MB/s	\$1389
3-5GIG	HP 35480A	DAT, DDS-DC	4mm	10-15 MB/s	\$1819
2.2GIG	Exabyte EXB-8200	Digital/Helical	8mm	10-15 MB/s	\$1949
5.0GIG	Exabyte EXB-8500	Digital/Helical	8mm	10-15 MB/s	\$3229

Includes RetroSpect v.1.3c Backup Software & One Tape
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Model		Capacity	Description	Seek	External
CMO-OD3000	Teac	128mb	3.5" Half Ht	45ms	\$1195
CMO-LF3004	Panasonic	128mb	3.5" Half Ht	45ms	\$1185
CMO-3100E	Ricoh	128mb	3.5" Half Ht	45ms	\$1249
CMO-3600	Ricoh	594/652mb	5.25" Full Ht	28ms	\$2695
CMO-5030E2	Ricoh	594/652mb	5.25" Full Ht	66.7ms	\$2149
128mb Cartridge		3.5" Single Sided			\$39
594/652mb Cartridge		5.25" - 512/1024 bytes/sec			\$99

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RasterOps PaintBoard Li	\$829	ClearVue/LC	\$309
RasterOps 24Mx	\$1165	ClearVue/Classic	\$309
RasterOps MxQ	\$1165	ClearVue/GS30	\$619
RasterOps 24Sx	\$619		
ColorBoard 264/SE30	\$699		
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AH1012 - 12port Smart Hub (Upgradable to SNMP)	\$825
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16mb X 8 - 80ns	\$479

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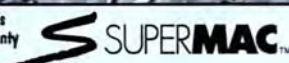
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CIRCLE 41 ON READER SERVICE CARD.

November, 1992

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More Disk Space™ from ALYSIS is included with the ETC DataPress to provide the easiest and fastest data compression possible on the Mac!

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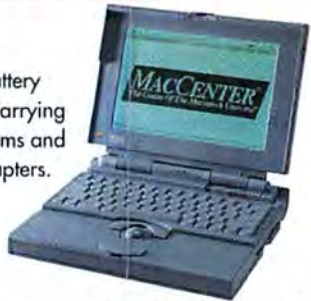
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ILLUSTRATOR w/ATM	359.00
PHOTOSHOP 2.0	545.00

ALDUS - 30 Day MBG	
FREETHAND 3.1	389.00
PAGEMAKER 4.2	489.00
SUPERPAINT 3.0	130.00

BRODERBUND	
TYPESTYLER w/ATM	127.00

CLARIS - 30 Day MBG	
MACDRAW PRO 1.5	249.00

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6mb memory module	\$289 ⁰⁰
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Quantum 120MB	\$559 ⁰⁰

FRactal Design - 30 Day MBG

PAINTER 1.2	229.00
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MACROMEDIA - 30 Day MBG	
DIRECTOR 3.1	789.00
MEDIAMAKER	475.00
SWIVELMAN 1.0	599.00

QUARK - 30 Day MBG	
QUARK X PRESS 3.1	579.00

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TOUCHBASE	75.00

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APPLETALK REMOTE ACCESS	169.00
PC EXCHANGE	65.00
QUICKTIME STARTER KIT	155.00
SYSTEM 7 UPGRADE	79.00

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HARD DISK TOOL KIT	124.00
HD TOOL KIT PERSONAL	52.00

NOW SOFTWARE - 30 Day MBG

NOW-UP-TO-DATE	65.00
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SALENT SOFTWARE - 30 Day MBG

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NORTON UTILITIES V2.0	95.00
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MARKETPLACE

The cost-effective buying arena that provides sellers of Macintosh compatible products 3 advertising options: Premier, Classified and BusinessCard to meet their specific advertising goals, reaching 400,000 Macintosh Business Buyers. All sections are set up by product category and offer reader service.

PREMIER

The four-color showcase that spotlights leading-edge products and services.

337-341

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342-359

BUSINESS CARD

A forum for innovative, unique, low-cost and hard-to-find Macintosh hardware, software, and miscellaneous products and services.

360-361

PRODUCT CATEGORIES

	PREMIER	CLASSIFIED	BUSINESSCARD		PREMIER	CLASSIFIED	BUSINESS CARD
HARDWARE							
Accelerator Boards	338	342		Real Estate			361
Bar Coding		342		Recreation			361
CD-Rom				Religion	341		
Communications				Sales Marketing			
Computer Systems		342		Scientific		357	361
Data Acquisition				Security			
Data Recovery Services		346	360	Shareware		358	
Disk Drives	337	347		Stackware			
Diskettes				Statistics			
General		347		Taxes			
Input Devices	338			Utilities			361
Insurance		347	360				
Memory Upgrades		347		MISCELLANEOUS			
Networking				Accessories	341	358	
Peripherals	338	350		Books/Catalogues			
Power Supplies		353		Business Opportunities			
Printers	338			Consulting/Programming			361
Scanners	339		360	Data Conversion Services		358	
Security				Desktop Publishing Services		358	361
Tape Drives			360	Diskette Copy Services		358	
Used Equipment				Furniture			
				Insurance			
SOFTWARE							
Accounting			360	Novelties			
Back Up Systems		354		Services/Repair		358	361
Bar Coding	339	354		Slide Imaging Services	341	358	
Business	339	354	360	Supplies	341	359	
Business Time Management				Training			361
CAD/CAM							
CD-ROM	340	355		AD SALES INFORMATION			
Communications/Networking		354		One Park Avenue, New York, NY 10016			
Desktop Publishing		354		(212) 503-5115 or (800) 825-4ADS			
Educational	340	354	360	ACCOUNT REPRESENTATIVES			
Emulation				Sherrie M. Graddic (212) 503-5152			
Engineering		354	360	Business Card Representative			
Entertainment/Games	340	354	360	Larry Grella (212) 503-5138			
Financial			361	AL, AR, IA, IL, IN, KS, KY, LA, MI, MO, MS, NE, OH, OK, TN, TX, WI, CANADA, OVERSEAS			
Fonts		356	361	Thomas P. Koletas (212) 503-5136			
Foreign Languages	340	356		CT, DC, DE, FL, GA, MA, MD, ME, NC, NH, NJ, NY, PA, RI, SC, VA, VT, WV			
Genealogy				Dennis M. Leavey (212) 503-5111			
General		356	361	AK, CA (209, 408, 415, 510, 707, 800, 805, 916), HI, ID, MN, MT, ND, NV, OR, SD, WA, WY			
Government				Laura A. Salerno (212) 503-5140			
Graphics	340	356		AZ, CA (213, 310, 619, 714, 818), CO, NM, UT			
Health			361	CENTRAL ADVERTISING STAFF			
Language Tools				Paul Stafford			
Legal				Vice President, Central Advertising			
Lottery			361	Anne R. Brockinton			
Medical/Dental			361	Production Director			
Music/MIDI	340	357		Chris Meyer			
Networking				Production Coordinator			
Personal Management				Paul A. Fusco			
Programming Tools	341		361	Sales Manager			
Public Domain		357		Nepreil Foster			
				Advertising Coordinator			

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	120 LPS 10ms	509	499	439
	240 LPS 10ms	789	779	709
	425 10ms	1099	1089	1035
2Y.F.W.	TMS Pro R45 / R90 w/ 1 cart.		429 / 595	
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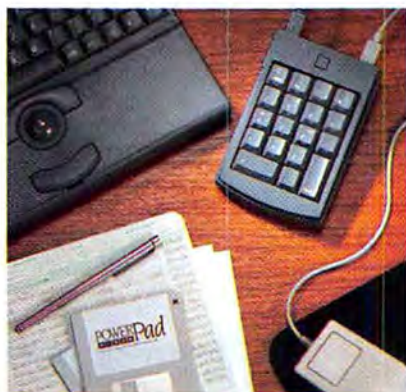
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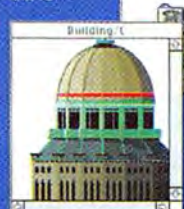
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MacWeek Review
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CIRCLE 306 ON READER SERVICE CARD

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PORTABLE BAR CODE READERS

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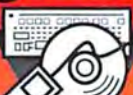
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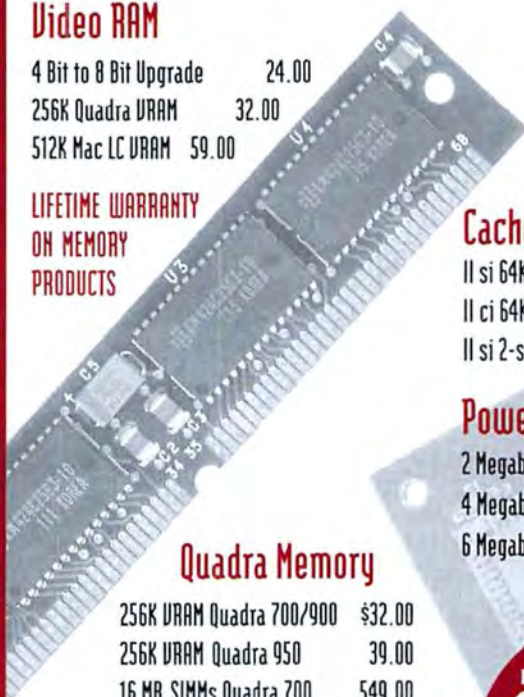
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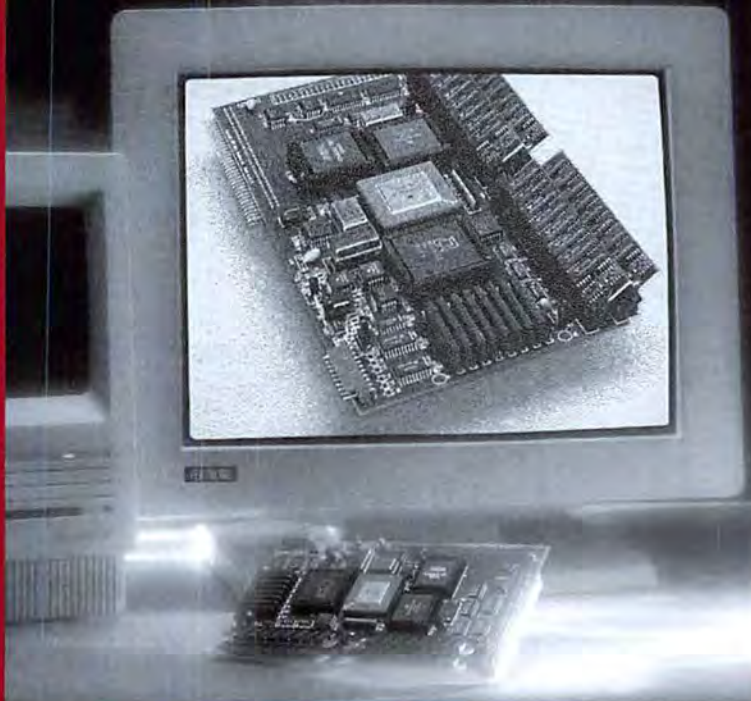


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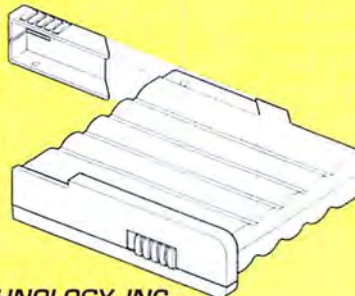
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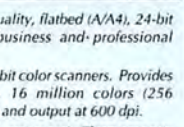
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The Game of the Name



A rose by any other name would smell as sweet — but wouldn't you really rather drive a Butt-Kicker?



It's time to face the fact: The Mac is at the end of its life cycle. It's become a dead-end platform, just as the Apple II became a dead-end platform in 1984, when the Mac was introduced.

The newest same-old Macs now on sale at Sears prove that the end is near.

The basic Macintosh is almost nine years old. If you count the Lisa as part of its evolution, then it's nearly a decade old. This is old for an architecture that hasn't changed much except for the addition of a needed bus and some multitasking capability.

Sure the chips are faster, but Motorola has been unable to keep up the torrid pace set by Intel, and we'll never see a 68060, that's for sure! So even the CPU has hit a dead end, as Apple moves to RISC and a new design.

The only big question left is, What will Apple call its next-generation computer? The Mac III? Will it drop the Mac moniker altogether — or just leave the Mac to languish like the Apple II? I suspect it will languish as die-hard Mac owners moan and groan as old Apple II users used to do.

Although I'm sure Apple is consulting with naming experts, those guys do not have the collective brainpower of the Mac user community. I have a few ideas that may trigger some of your own. Be sure to send your ideas to John Sculley.

Name Your Poison

Naming conventions generally fall into five broad categories: vegetable, animal, mineral, mathematical, and conceptual.

The name *Apple* itself comes from the vegetable category. This category broadly refers to any nonmobile life-form, except for sysops: The Macintosh, the Pineapple, the Fern. I'd include Mushrooms and Fungi in this category too. The Pinecone II might be a good name for a computer. Or the Seaweed. How about the Yucca or the Onion computer? I like the Cactus computer — get the point? But I suspect that Apple may just name the next machine after still another breed of apple fruit, such as the Roma, the Gravenstein, or the Golden Delicious. How about the Winesap or the Crab Apple?

Onward to the animal category. Car makers once used this one to excess: Falcon, Mustang, Bronco, Cougar, Panther, Stingray. The computer makers haven't done much to exploit these possibilities, although this category has a lot of potential names: the

Buffalo, Canary, Pig, Dog, Cockroach, Blowfish, Horsefly. I think the Apple Carp would be a good name. Or how about a radical new name such as the Apple Boneless Chicken computer?

Mineral is the next category. Rock, Dust, Sand, Saltwater, Cardboard, Pyrites, Gold, Silver, Hydrogen. Here the possibilities are endless, especially if we think in terms of macros such as the Socket Set or the Crock of Crap. Now I guarantee that if Apple names its next computer the Apple Crock of Crap, it would get all the free publicity it would ever need. Every newspaper and magazine would analyze the idea to death, wondering why a great marketing company like Apple would do such a thing.

"Looking for a new computer? Buy an Apple Crock of Crap!"

Copycats would follow with screwball names for their machines too. Scatological references would be in vogue as we'd see the Compaq Pile o' Dung and the IBM Bat Guano/2.

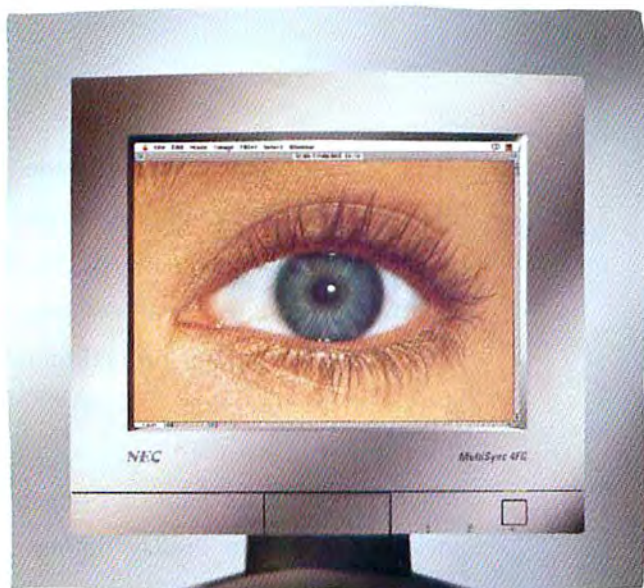
The mathematical names come next. They are usually just alphanumeric designations such as the new Mac 200 and 400 machines. German car companies seem preoccupied with alphanumerics as the accepted way to name cars: 750i, 300D, 190E, 325i, 911, 914, 939, and so on, and so on. Some car makers like to use a formula such as the 2+2 sports car. Why they don't just call it a 4 mystifies me.

Finally, there's the high concept. A name such as the I-Can't-Believe-It's-A-Girdle girdle falls into this category. Concept names for a computer might be the Sunset, the High Jump, the Dream Boat. More-complex concepts such as the Pie in the Face or the Rotten Glass of Swill add new dimensions to this category. Apple could, for example, call its computer the Bust a Gut Laughing computer. What about being descriptive with a name such as the Oooey-GUI computer? I think a macho name such as the Butt-Kicker would be perfect for a computer:

"Falling behind in your work? Spreadsheets taking forever to recalc? Try a Butt-Kicker, from Apple!!"

Very cool name, if you ask me.

Whatever Sculley and company do, let's hope Apple is not going to use a code name, as it did with the Macintosh. We could wind up with the Apple Pink! Or the Pinkintosh? I think not. Get those suggestions in *fast!*



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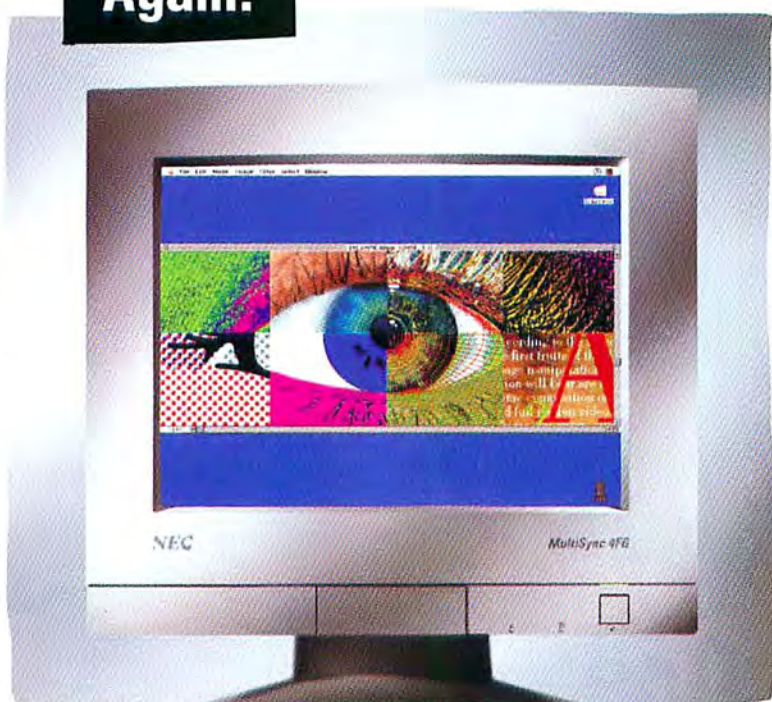
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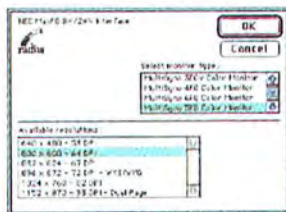
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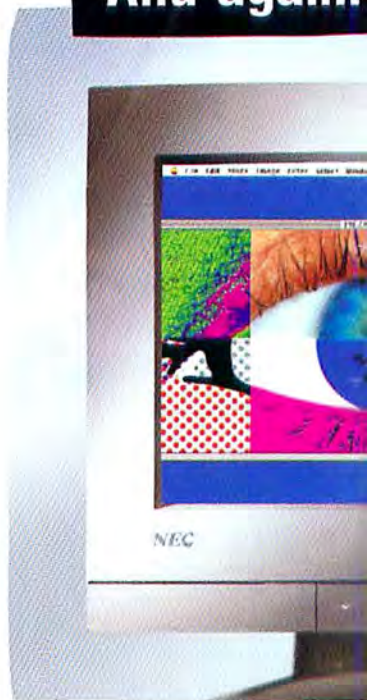


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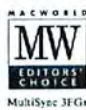
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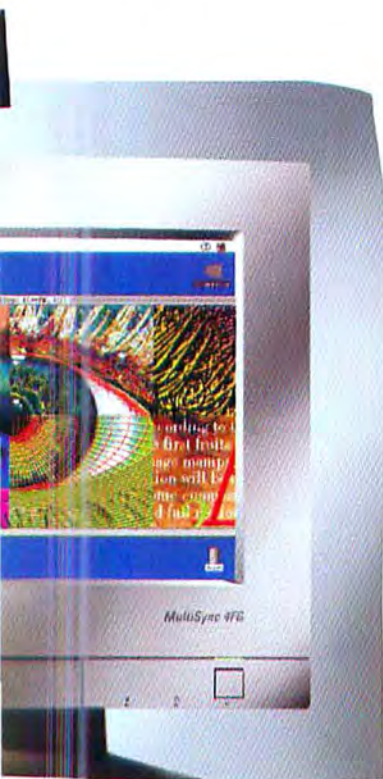
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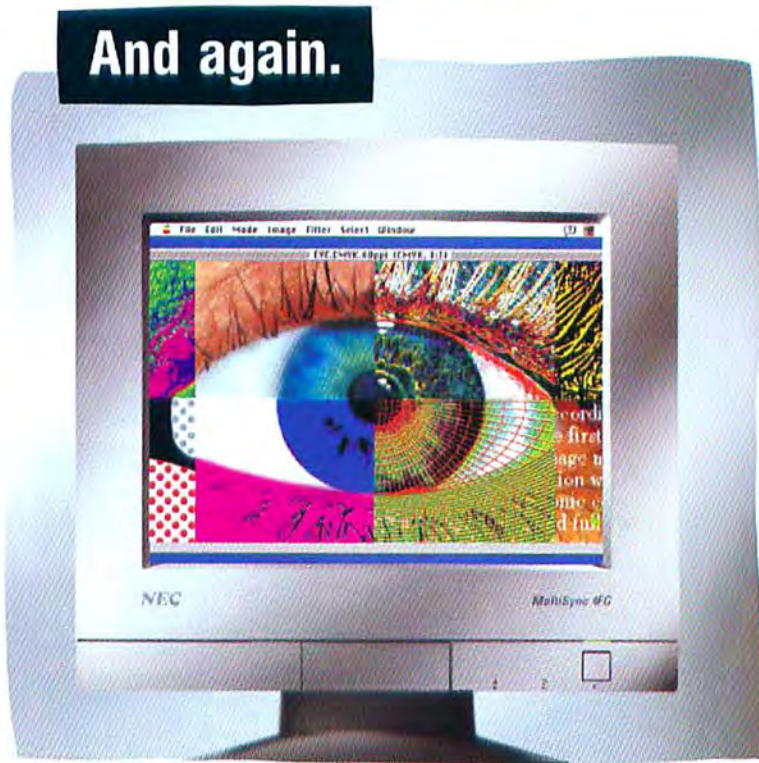
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